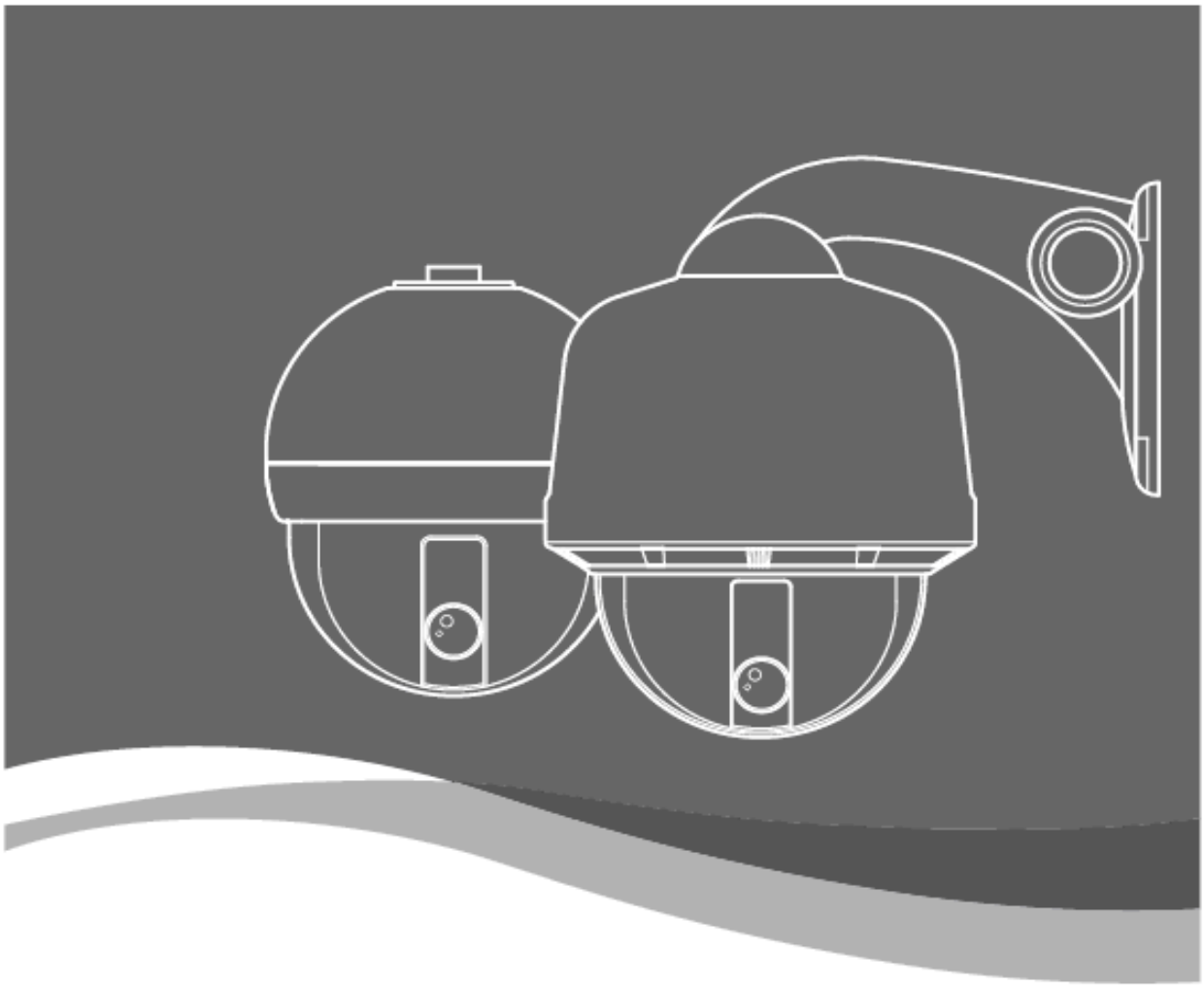

HIGH SPEED DOME CAMERA

User Manual

650 TVL

DSC-737SE

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Ⅰ. CAUTION

Thank you for purchasing our product. Please operate the product after being fully aware of the manual. Pease contact us if you have any queries.

Precaution

Note the following matters before the installation of the product.

Avoid the following places for the installation.

A high/low temperature: Using indoor-cameras in the places of +50°C~ -10°C can cause troubles and lower its capacity.

Snow, rain and wet: Humidity or water and any liquid inside-camera can cause troubles.

Oil, gas: Oil and gas can damage the camera as they go through the cameras.

Vibration, shock: They bring on problems or errors of the camera.

Direct light, exposure to the air: In the case of that sets indoor- cameras outside where the weather is changeable, it can cause problems.

Closing to High frequency and electric power lines: Setting the camera up around electromagnetic units or power supplier can

. .

Caution in Use

Do not disassemble the unit and put alien substances in the unit.

- Disassembling the unit or putting alien substances such as a metal can make the camera defective.
- Make sure of power switch-off before the installation.
  : Ensure power switch-off and check the voltage the camera before the installation.
- Do not give the unit a shock and an operation.
  : Giving a strong shock or an excessive power on the button, terminal can cause problem.

This product has been designed and manufactured in accordance with the harmonized European standards, following the provisions of the below stated directives.

Electromagnetic Compatibility Directive 89/336/EEC

(EN60065:1998, EN61000-6-3:2001, EN61000-6-1:1997)

This devise complies with part 15 of the FCC rules operation is subject to the following two conditions: (1) This device may not cause harmful interference and (2) This device must accept any interference received including interference that may cause undesired operation

Caution :

① Must use AC24V power source, current intensity must be less than 1.5A and must use a double winding transformer
② Never extend the power line from adaptor to camera.
③ Please use more thick cable than 18AWG(1.0mm), if you want to extend the power line.
④ You must use one adaptor per one camera that is being provided.
⑤ Use extra power supplier, If you want to supply many piece of cameras.

Ⅱ. INTRODUCTION OF PRODUCT

1. DESCRIPTION AND FEATURES

Description

This camera has been designed elegantly for buildings, department stores that need to be in harmony with the interior as a high speed dome camera, including various observation functions.

Features

☺ **High Resolution and Zoom Rate**

High resolution 650 TVL with Sony 960H CCD and Built-in High Zoom (28X, 37X) Rate Camera with 12x Digital Zoom

☺ **A low light function**

Surveillance with optimum picture is possible owing to digital-slow-shutter function. Digital-slow-shutter function is improving the CCD sensitivity by electrically lengthening exposure time so that it should be under surveillance on the condition of 0.00001Lux in B/W

☺ **Wide Dynamic Range + ACE**

ACE can clearly distinguish objects in any location, including those with harsh lighting such as backlit warehouses with extreme differences in brightness in which WDR may not function properly.

☺**Slow AE**

This feature allows user to customize the exposure adjustment speed. This is useful for monitoring of areas where lighting is prone to abrupt changes at night.

☺ **3D-DNR**(**Digital Noise Reduction**)

3D-DNR removes image noise. If the scenes are not clear due to low brightness, the function can make the image clean and obvious.

☺ **Digital Image Stabilize**

There is some tremble as zoom magnification is high, the function can compensate the tremble.

☺ **Auto Tilt Function**

The unit can track the moving object automatically until 180° in vertical by using controller.

☺ 8 **Privacy Masking Zones**

For the privacy, it can be programmed for masking zone up to 8 locations on the OSD menu screen.

☺ **250 Preset positions**

A maximum of 250 preset positions can be programmed. The preset function enables to set where you want on monitor at any time.

☺ **Various auto-surveillance functions**

Swing(2), Group(12 Presets), Tour(12 Groups), Spiral, Trace

☺**Bad Pixel Correction**

We can detect bad pixels based on the pattern of the surround pixels. We also support on-the-fly

correction. (On–the–fly: automatically detect and correct bad pixel during sensor normal operation)

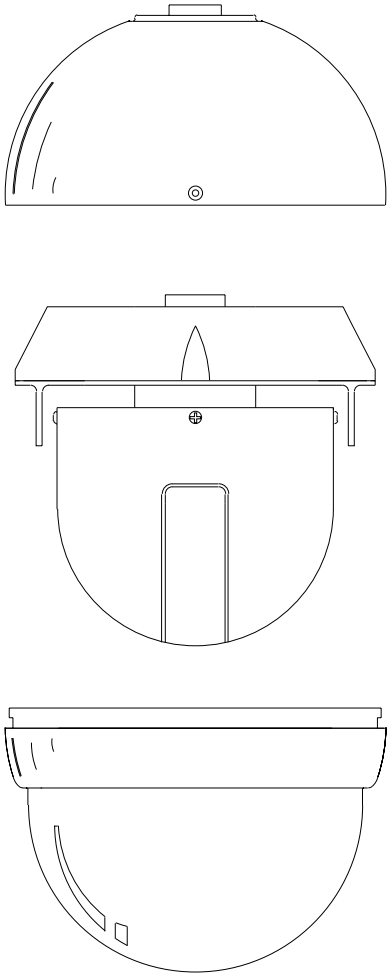
☺ **Smart pan/tilt function**

Pan and tilt speed compensation function in proportion to depth of zoom.

2. INSTALLATION AND CONNECTION

1) Name and function of each part

Indoor Type

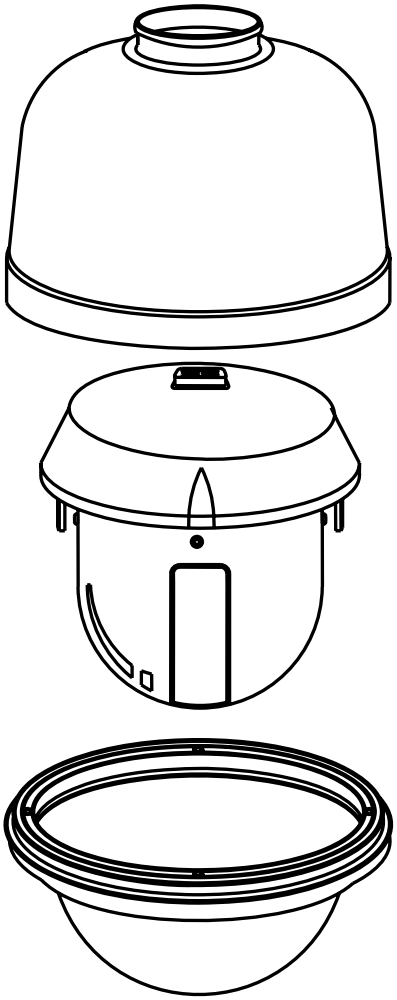


(UPPER COVER)
The camera's body goes to here and a power cable, data cable, video cable, sensor have been connected with this

(DOME DRIVER)
A main body that has a built-in the control units and camera

(LOWER COVER)
Insert the body into the upper cover, then close the lower cover

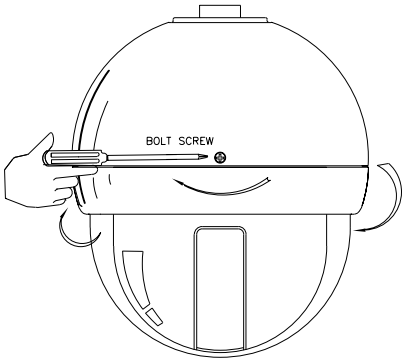
Outdoor Type



2) **Installation**

Indoor Type

Outdoor Type



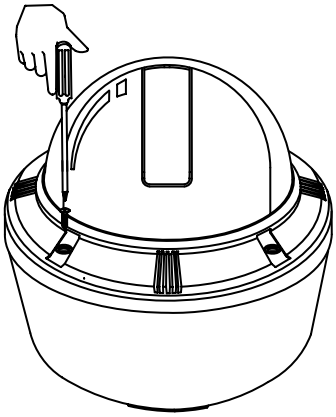
SEPARATION OF LOWER COVER

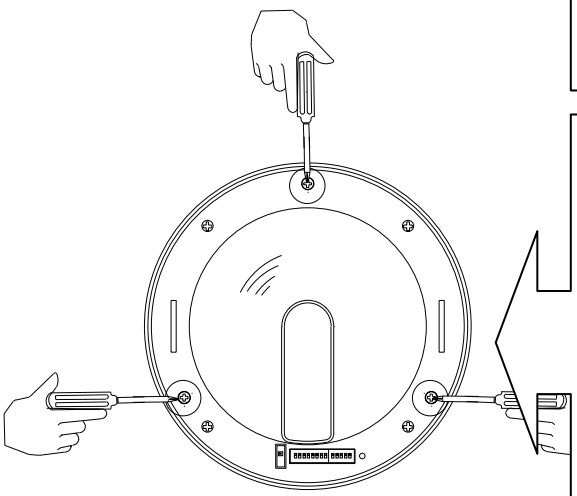
(Indoor type)

Loosen the bolt of the back of lower cover by a screwdriver(+), then turn the cover as above the picture and pull the lower cover to the down

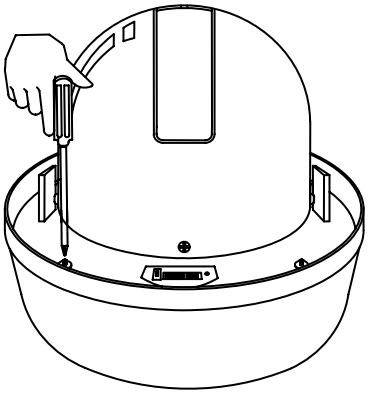
(Outdoor type)

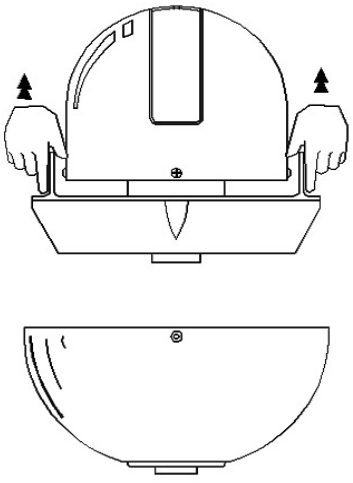
Loosen the four bolts of the lower cover, then separate.



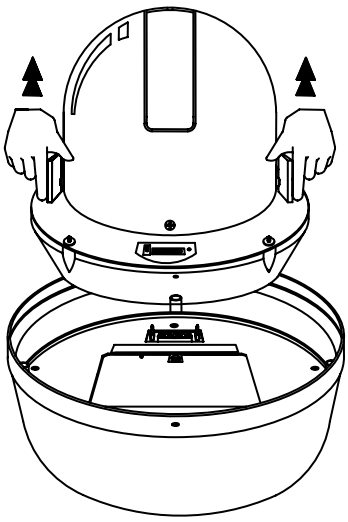


Loosen the three bolts, the round head shaped, of the camera body. The three bolts are not loosened completely and not come up more than 1cm of the lower cover, then separate.

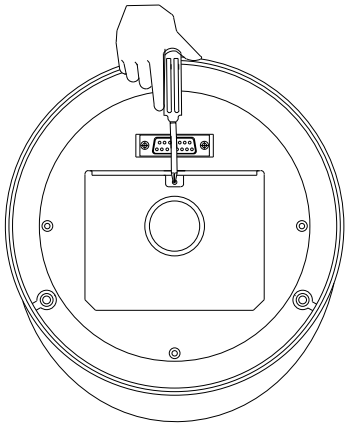




Pull the cover up with grabbing the bottom of the camera after loosening the three bolts

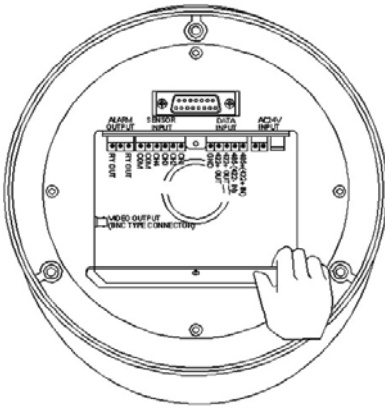


Open the connector cover, then connect power, data, video cable and sensor



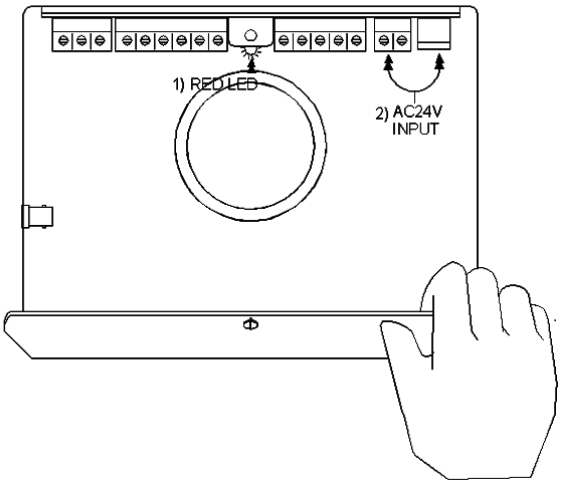
The cover is opened if user loosens the one bolt on the connector cover by using a screwdriver(+).

The bolts not loosened completely to protect from missing of them.
Be careful that each cable which each function is changed wrong



Have you connect the power cable in the right direction ?

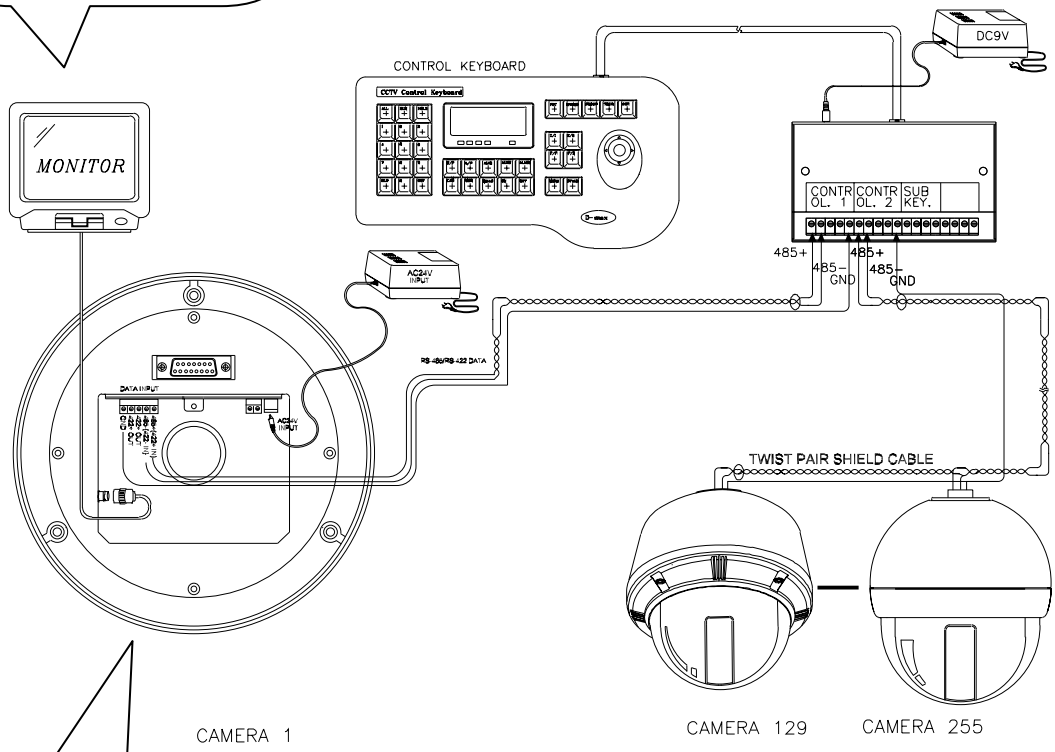
If yes
① RED led, in the middle of the connector, is lighted
② Use AC24V power source and user can use any power input that is connected with a terminal and a jack (But use 1 input).



3) How to connect equipments

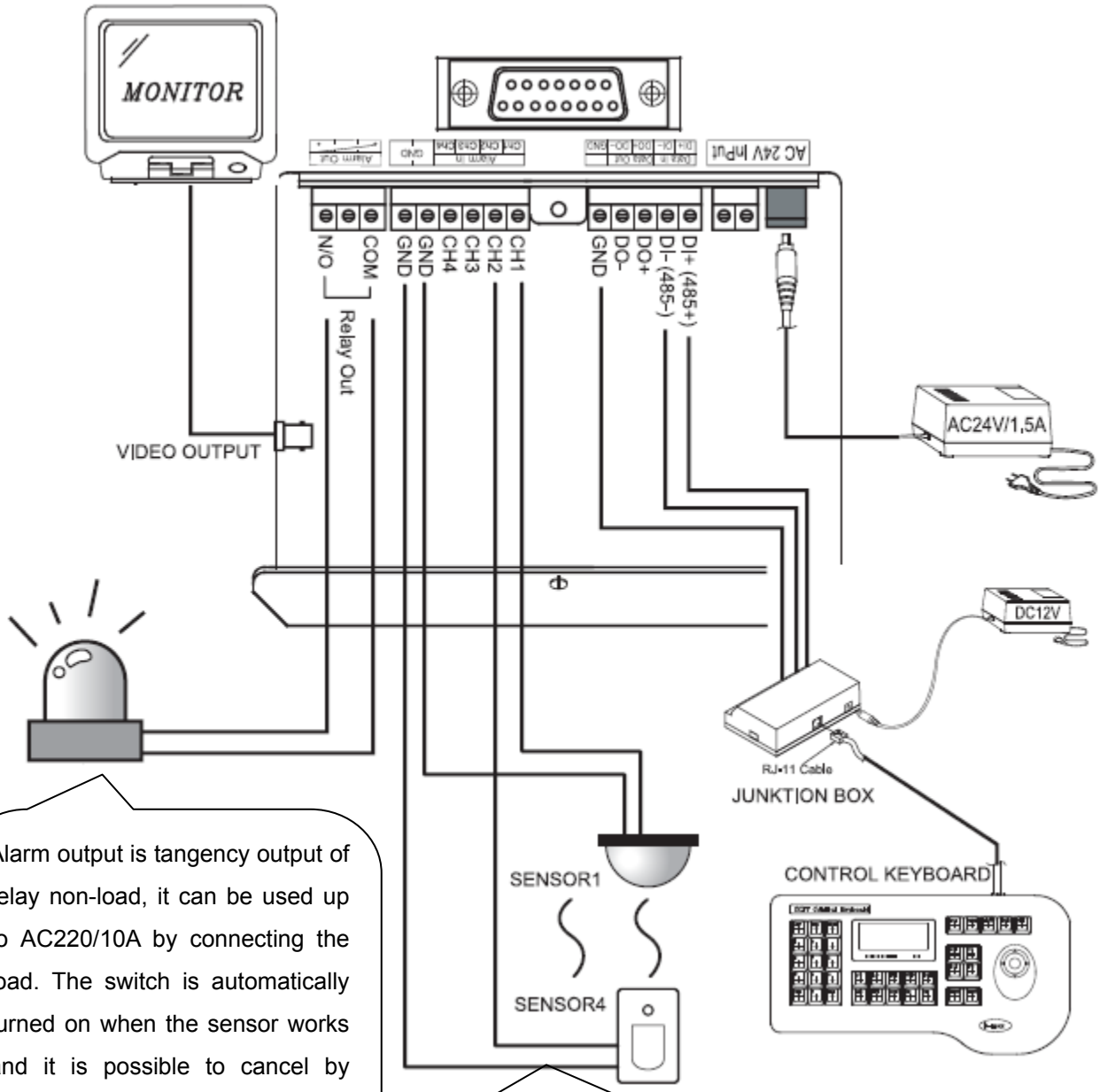
DC12V/1A adaptor and junction box are provided on a purchase, Junction box consists of 2 data ports (Each data port can be connected with maximum up to 128 cameras and sub keyboard terminal

Connect the image line of a monitor



Reference to the following page.

User can control maximum up to 255 cameras connected by using the exclusive control keyboard. User can connect it maximum up to 1.2km when using twist pair shield cable as a connecting cable



Alarm output is tangency output of relay non-load, it can be used up to AC220/10A by connecting the load. The switch is automatically turned on when the sensor works and it is possible to cancel by using the controller after a limited time

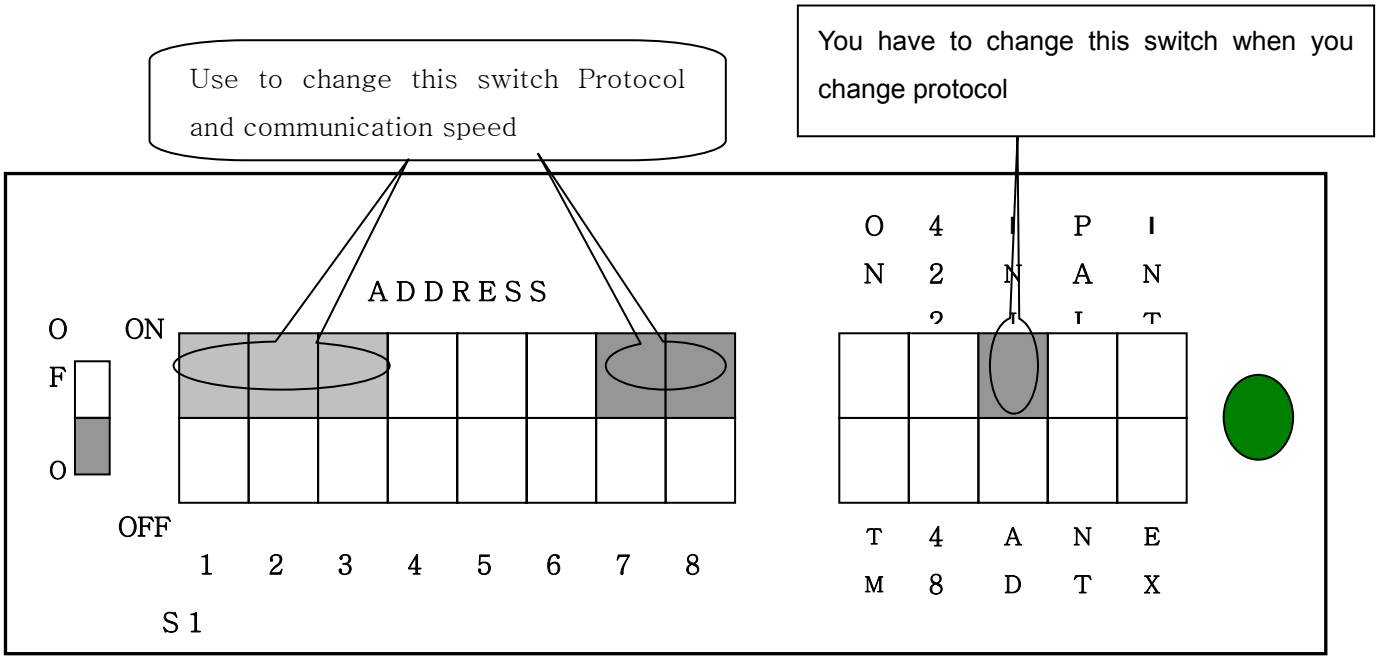
The sensor

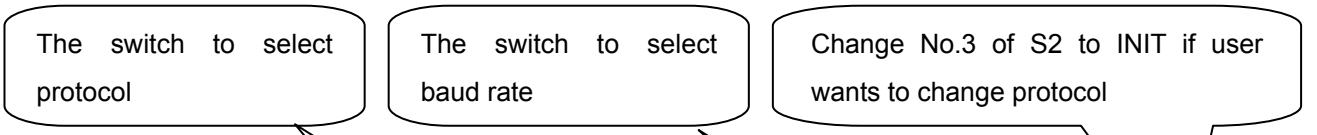
Can be connected maximum 4 channels and the camera can be moved automatically to the point by preset mode,

DATA

Can be processed by RS485 or RS422 and use parallel connection to use a large quantity of cameras. (Even if it must be used 2-twist paired cable in use of RS422, the terminal port which was connected with R485 cable port with 1-pair cable when it is not necessary to take a return data from camera

4) HOW TO SET PROTOCOL


Use to change this switch Protocol and communication speed
You have to change this switch when you change protocol
ADDRESS
ON
OFF
1 2 3 4 5 6 7 8
S 1
TERMINATE



PROTOCOL	S 1					S 2
	SW 1	SW 2	SW 3	SW 7	SW 8	SW 'INIT↔ADDR'
D-MAX (9600 bps)	OFF	OFF	OFF	OFF	OFF	INIT
P-P (9600 bps)	ON	OFF	OFF	OFF	OFF	INIT
P-P (4800 bps)	ON	OFF	OFF	OFF	ON	INIT
P-P (2400 bps)	ON	OFF	OFF	ON	OFF	INIT
P-D (9600 bps)	OFF	ON	OFF	OFF	OFF	INIT
P-D (4800 bps)	OFF	ON	OFF	OFF	ON	INIT
P-D (2400 bps)	OFF	ON	OFF	ON	OFF	INIT
S-T (9600bps)	OFF	OFF	ON	OFF	OFF	INIT

① Please the power off

② Switch protocol that user wants to change on as above the cable

③ The power on, then the set protocol and baud rate are appealed.

④ The power off, if every setting is right. Then the change of protocol is finished.

⑤ Change No. 3 of S2 to ADDR before the power on, then the power on after setting the address of the camera.

⑥ Try it again with the information as above the table, if something is wrong

5) **SETTING ADDRESS OF DIP SWITCHES**.

RX NO	DIP SWITCH (HEX)							RX NO	DIP SWITCH (HEX)						
	1	2	3	4	5	6	7		1	2	3	4	5	6	7
1	ON	OFF	OFF	OFF	OFF	OFF	OFF	33	ON	OFF	OFF	OFF	OFF	ON	OFF
2	OFF	ON	OFF	OFF	OFF	OFF	OFF	34	OFF	ON	OFF	OFF	OFF	ON	OFF
3	ON	ON	OFF	OFF	OFF	OFF	OFF	35	ON	ON	OFF	OFF	OFF	ON	OFF
4	OFF	OFF	ON	OFF	OFF	OFF	OFF	36	OFF	OFF	ON	OFF	OFF	ON	OFF
5	ON	OFF	ON	OFF	OFF	OFF	OFF	37	ON	OFF	ON	OFF	OFF	ON	OFF
6	OFF	ON	ON	OFF	OFF	OFF	OFF	38	OFF	ON	ON	OFF	OFF	ON	OFF
7	ON	ON	ON	OFF	OFF	OFF	OFF	39	ON	ON	ON	OFF	OFF	ON	OFF
8	OFF	OFF	OFF	ON	OFF	OFF	OFF	40	OFF	OFF	OFF	ON	OFF	ON	OFF
9	ON	OFF	OFF	ON	OFF	OFF	OFF	41	ON	OFF	OFF	ON	OFF	ON	OFF
10	OFF	ON	OFF	ON	OFF	OFF	OFF	42	OFF	ON	OFF	ON	OFF	ON	OFF
11	ON	ON	OFF	ON	OFF	OFF	OFF	43	ON	ON	OFF	ON	OFF	ON	OFF
12	OFF	OFF	ON	ON	OFF	OFF	OFF	44	OFF	OFF	ON	ON	OFF	ON	OFF
13	ON	OFF	ON	ON	OFF	OFF	OFF	45	ON	OFF	ON	ON	OFF	ON	OFF
14	OFF	ON	ON	ON	OFF	OFF	OFF	46	OFF	ON	ON	ON	OFF	ON	OFF
15	ON	ON	ON	ON	OFF	OFF	OFF	47	ON	ON	ON	ON	OFF	ON	OFF
16	OFF	OFF	OFF	OFF	ON	OFF	OFF	48	OFF	OFF	OFF	OFF	ON	ON	OFF
17	ON	OFF	OFF	OFF	ON	OFF	OFF	49	ON	OFF	OFF	OFF	ON	ON	OFF
18	OFF	ON	OFF	OFF	ON	OFF	OFF	50	OFF	ON	OFF	OFF	ON	ON	OFF
19	ON	ON	OFF	OFF	ON	OFF	OFF	51	ON	ON	OFF	OFF	ON	ON	OFF
20	OFF	OFF	ON	OFF	ON	OFF	OFF	52	OFF	OFF	ON	OFF	ON	ON	OFF
21	ON	OFF	ON	OFF	ON	OFF	OFF	53	ON	OFF	ON	OFF	ON	ON	OFF
22	OFF	ON	ON	OFF	ON	OFF	OFF	54	OFF	ON	ON	OFF	ON	ON	OFF
23	ON	ON	ON	OFF	ON	OFF	OFF	55	ON	ON	ON	OFF	ON	ON	OFF
24	OFF	OFF	OFF	ON	ON	OFF	OFF	56	OFF	OFF	OFF	ON	ON	ON	OFF
25	ON	OFF	OFF	ON	ON	OFF	OFF	57	ON	OFF	OFF	ON	ON	ON	OFF
26	OFF	ON	OFF	ON	ON	OFF	OFF	58	OFF	ON	OFF	ON	ON	ON	OFF
27	ON	ON	OFF	ON	ON	OFF	OFF	59	ON	ON	OFF	ON	ON	ON	OFF
28	OFF	OFF	ON	ON	ON	OFF	OFF	60	OFF	OFF	ON	ON	ON	ON	OFF
29	ON	OFF	ON	ON	ON	OFF	OFF	61	ON	OFF	ON	ON	ON	ON	OFF
30	OFF	ON	ON	ON	ON	OFF	OFF	62	OFF	ON	ON	ON	ON	ON	OFF
31	ON	ON	ON	ON	ON	OFF	OFF	63	ON	ON	ON	ON	ON	ON	OFF
32	OFF	OFF	OFF	OFF	OFF	ON	OFF	64	OFF	OFF	OFF	OFF	OFF	OFF	ON

-No.1 is changed to No.64 and the last No.64 is changed No.128 when No.7 DIP SW is on.

-No.1 is changed to No.129 when No.7 DIP SW is off and No.8 DIP SW is on.

-No.1 is changed to No.193 and user can set up to maximum 255 ADDRESS when No.7, 8 DIP SW are on.

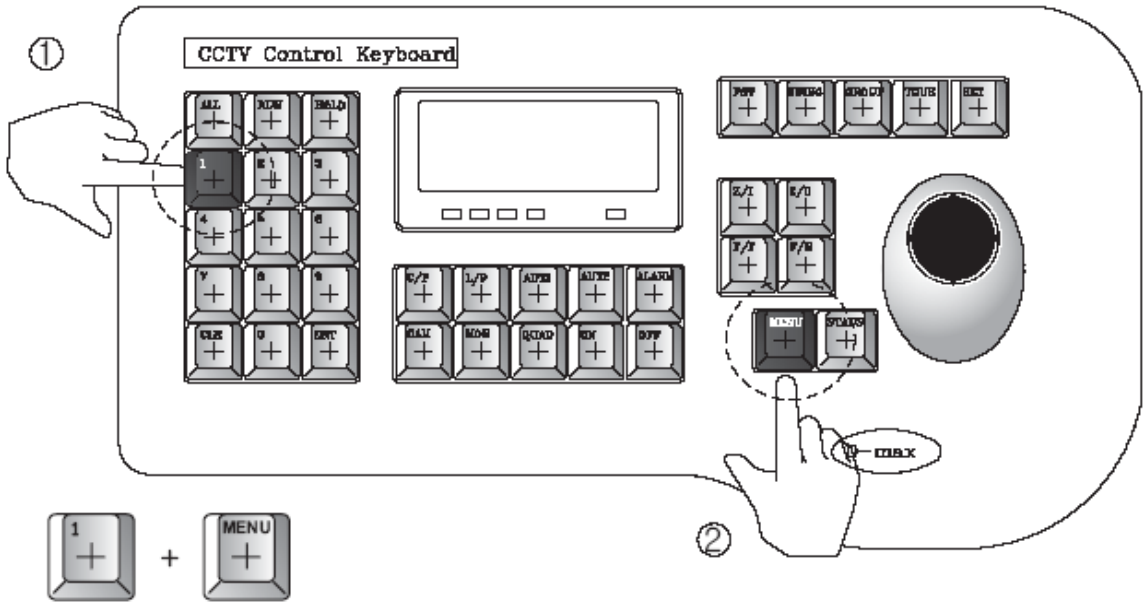
Ⅲ. DIRECTIONS FOR USE

● OSD (ON SCREEN DISPLAY) menu control

It is the function to call up the Menu

∗ User can not only set Preset, Group, Tour, Swing, Trace functions of the camera up by the menu, but also set them up by shortening keys.

● Accessing OSD menu

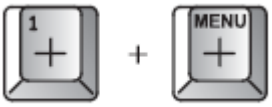


● The menu is displayed on the screen with the key tone when user presses No.1 and menu key.

◄◄ CAMERA SETUP p1 ►►
1. ID Set : Press F/F Key
2. OSD Display. : ID + Status
3. H-V Reverse. : Normal
4. AGC Control : 05
5. Shutter speed. : AUTO
6. Sharpness level : 20
7. Brightness : 23
8. Color Level :30
9. Slow AE : FAST
- NEXT MENU PAGE

● OSD Menu Control Up, Down, Right and Left moving of Cursor like under pictures

● Cancellation of OSD menu



◄◄ CAMERA SETUP p1 ►►
1. ID Set : Press F/F Key
2. OSD Display. : ID + Status
3. H-V Reverse. : Normal
4. AGC Control : 05
5. Shutter speed. : AUTO
6. Sharpness level : 20
7. Brightness : 23
8. Color Level :30
9. Slow AE : FAST
- NEXT MENU PAGE

1. ID SET.

This function is to set camera ID up to 16 letters on the monitor. User can choose letters that they want, if user control a joystick up / down / right / left, and user can reselect the previous letters, if user presses Z/I, Z/O or turn the head of the joystick to right/left

◄◄ CAMERA SETUP p1 ►►
1. ID Set : Press F/F Key
2. OSD Display. : ID + Status
3. H-V Reverse. : Normal
4. AGC Control : 05
5. Shutter speed. : AUTO
6. Sharpness level : 20
7. Brightness : 23
8. Color Level :30
9. Slow AE : FAST
- NEXT MENU PAGE

2. OSD DISPLAY.

Set up whether user sets ID and STATUS to display on the screen in normal operating.

- ID + Status: 'ID' and 'Status' displayed on the screen
- ID only: Only 'ID' displayed on the screen
- Status only: Only 'Status' displayed on the screen
- All off: Nothing displayed on the screen

◄◄ CAMERA SETUP p1 ►►
1. ID Set : Press F/F Key
2. OSD Display. : ID + Status
3. H-V Reverse. : Normal
4. AGC Control : 05
5. Shutter speed. : AUTO
6. Sharpness level : 20
7. Brightness : 23
8. Color Level :30
9. Slow AE : FAST
- NEXT MENU PAGE

3. H-V REVERSE

Set up H-V reverse mode.

- Normal
- H-REV : You can flip the picture horizontally on the screen.
- V-REV : You can flip the picture vertically on the screen.
- HV-REV : You can flip the picture horizontally and vertically on the screen.

◄◄ CAMERA SETUP p1 ►►
1. ID Set : Press F/F Key
2. OSD Display. : ID + Status
3. H-V Reverse. : Normal
4. AGC Control : 05
5. Shutter speed. : AUTO
6. Sharpness level : 20
7. Brightness : 23
8. Color Level :30
9. Slow AE : FAST
- NEXT MENU PAGE

4. AGC CONTROL

You can set the gain limit in AE mode. Using this setting, you can select analog gain limit 0 to 10.

▶ off, 1~10

◄◄ CAMERA SETUP p1 ►►
1. ID Set : Press F/F Key
2. OSD Display. : ID + Status
3. H-V Reverse. : Normal
4. AGC Control : 05
5. Shutter speed. : AUTO
6. Sharpness level : 20
7. Brightness : 23
8. Color Level :30
9. Slow AE : FAST
- NEXT MENU PAGE

5. SHUTTER SPEED

As a setting shutter speed mode, it can be distinguished a fast moving subject easily by means of shutter speed up.

※ Attention-The illumination of the camera decreases if shutter speed is up.

※The state of first default is 'AUTO'.

※When the shutter speed is fixed, Sens-up doesn't work.

▶ Range : x512~x2, auto, off, auto, A.FLK, 1/160, 1/200~1/120000

◄◄ CAMERA SETUP p1 ►►
1. ID Set : Press F/F Key
2. OSD Display. : ID + Status
3. H-V Reverse. : Normal
4. AGC Control : 05
5. Shutter speed. : AUTO
6. Sharpness level : 20
7. Brightness : 23
8. Color Level :30
9. Slow AE : FAST
- NEXT MENU PAGE

6. SHARPNESS LEVEL

Compensation of the shape of a subject

▶ Range : 0 ~ 34, Default : 20

◄◄ CAMERA SETUP p1 ►►
1. ID Set : Press F/F Key
2. OSD Display. : ID + Status
3. H-V Reverse. : Normal
4. AGC Control : 05
5. Shutter speed. : AUTO
6. Sharpness level : 20
7. Brightness : 23
8. Color Level :30
9. Slow AE : FAST
- NEXT MENU PAGE

7. BRIGHTNESS

Control brightness of a screen.

The screen gets dark because an iris is closed as the numerical value is low, whereas the screen gets bright because an iris is opened as the numerical value is high.

▶ Range: 0~50, Default: 23

◄◄ CAMERA SETUP p1 ►►
1. ID Set : Press F/F Key
2. OSD Display. : ID + Status
3. H-V Reverse. : Normal
4. AGC Control : 05
5. Shutter speed. : AUTO
6. Sharpness level : 20
7. Brightness : 23
8. Color Level :30
9. Slow AE : FAST
- NEXT MENU PAGE

8. Color Level

The color function is available to switch normal image to black and white image.

When this function is set to on, you can control color saturation value from 0 to 50.

▶ Range: 0~50, Default: 30

◄◄ CAMERA SETUP p1 ►►
1. ID Set : Press F/F Key
2. OSD Display. : ID + Status
3. H-V Reverse. : Normal
4. AGC Control : 05
5. Shutter speed. : AUTO
6. Sharpness level : 20
7. Brightness : 23
8. Color Level :30
9. Slow AE : FAST
- NEXT MENU PAGE

9. Slow AE

When the scene brightness is changed, camera exposure is adjusted to new condition. Normally the AE is set to work at fast speed but in certain situations it is better to slow it down. For example, at night the scene is dark but when a car headlight enters the scene, the scene suddenly becomes very bright and the surroundings which were previously visible become dark in short time. By using this function, visibility of the surroundings can be preserved during the passing by. The AE speed can be slowed down up to approx. two minutes (16 steps).

▶ Slow / Middle / High

◄◄ CAMERA SETUP p2 ►►
10. Back Light : Off
11. Set Back Light Mode
12. White Balance : Auto
13. Focus Mode :Oneshot
14. Zoom Max Limit : 28/37
15. DSS Control : 8 Fields
16. Day&Night : Auto
17. 3DNR Control :Middle
- PREV MENU PAGE
- NEXT MENU PAGE

10. BACK LIGHT

This camera is designed so that it delivers a distinctive subject and background at the same time, even when the subject is in backlight, unlike conventional cameras, by adopting a proprietary DSP chip. .Please select a suitable mode below them (The Set Back Light Mode will be automatically changed by the selection)

▶ Off, WDR MODE, HSBLC MODE, BLC MODE

OFF : Deactivates the BACKLIGHT function.

WDR : The Wide Dynamic Range function is combining long-exposure signals (normal shutter) with the signals of the high-intensity portions obtained with a short exposure (high-speed shutter).

It allows dark portions of a bright image to be shown clearly, thus enhancing details and removing noise.

BLC : Enables a user to directly select a desired area from a picture, and to view the area more clearly..

HSBLC(High Light Compensation) : When there are highlights in the background of the object, HSBLC has powerful back light compensation performance. The function suppress highlight then it will make the object of image very clear and obvious. By setting the mask area, gray scale and HS Level, the user will experience better operating convenience and see a clearer number plate.

◄◄ CAMERA SETUP p2 ►►
10. Back Light : Off
11. Set Back Light Mode
12. White Balance : Auto
13. Focus Mode :Oneshot
14. Zoom Max Limit : 28/37
15. DSS Control : 8 Fields
16. Day&Night : Auto
17. 3DNR Control :Middle
- PREV MENU PAGE
- NEXT MENU PAGE

11. SET BACK LIGHT MODE

▶ WDR MODE

◄◄WDR SETUP PAGE ►►
- WDR LEVEL : MIDDLE
- ACE : OFF

- LEVEL: Adjust the WDR Sensitivity by selecting Low Middle or High

- ACE: In a case of extreme contrast between light and shade, ACE even more brighten the dark portion of the image with the WDR function.

▶ **HSBLC MODE**

◀HSBLC SETUP PAGE▶
- HSBLC LEVEL : 2(0~5)
-MASK STATE : ON
-MASK COLOR :GRAY
-AREA SETTING
01:ON 02:ON 03:ON 04:ON
05:ON 06:ON 07:ON 08:ON
09:ON 10:ON 11:ON 12:ON
13:ON 14:ON 15:ON 16:ON
- NEXT MENU PAGE

- HSBLE LEVEL: Adjust the HLC Sensitivity by selecting Low, Medium or High
- MASK STATE: when user select “On” mode, mask areas will be appear on the monitor.
- Mask color: Select mask color
- Area setting: select areas that you want to mask on the monitor and user can mask up to 16 zones

▶ **BLC MODE :** When background of a subject is too bright, subject appears dark since AE is working on the overall picture. The BLC function increases the visibility of underexposed subject.

- BLC Level: Adjust the BLC Sensitivity by selecting Low, Middle or High

After complete all setup, then move to RETURN MENU PAGE. It is automatically saved.

◀◀ CAMERA SETUP p2 ▶▶
10. Back Light : Off
11. Set Back Light Mode
12. White Balance : Auto
13. Focus Mode :Oneshot
14. Zoom Max Limit : 28/37
15. DSS Control : 8 Fields
16. Day&Night : Auto
17. 3DNR Control :Middle
- PREV MENU PAGE
- NEXT MENU PAGE

12. WHITE BALANCE

White Balance has the 4 modes listed below. It can be set according to surroundings in which camera is placed. When each mode is changed, the coverage of color temperature is also changed. This function automatically operates to estimate color temperature by searching for white point in the scenes with various light source. In addition, it is possible to reproduce color, especially in sodium and mercury light.

▶ ATW (Auto Tracking White Balance)

This mode supports color temperature of range 1700K to 11,000K, including sodium and mercury light.

▶ Auto

Color temperature range of this mode is 2900K to 6500K and is the default camera setting.

▶ Indoor/Outdoor

Indoor mode is based on 3600K and Outdoor mode is based on 6500K.

◀◀ CAMERA SETUP p2 ▶▶
10. Back Light : Off
11. Set Back Light Mode
12. White Balance : Auto
13. Focus Mode :Oneshot
14. Zoom Max Limit : 28/37
15. DSS Control : 8 Fields
16. Day&Night : Auto
17. 3DNR Control :Middle
- PREV MENU PAGE
- NEXT MENU PAGE

13. FOCUS MODE

Change Focus Mode to hand-worked or auto.

▶ OneShot : Auto Focusing mode works during non-working after zoom is worked.

▶ Auto: It adjusts the focus automatically as it monitors the screen.

▶ Manual: User can control the focus by hand-worked.

◄◄ CAMERA SETUP p2 ►►
10. Back Light : Off
11. Set Back Light Mode
12. White Balance : Auto
13. Focus Mode :Oneshot
14. Zoom Max Limit : 28/37
15. DSS Control : 8 Fields
16. Day&Night : Auto
17. 3DNR Control :Middle
- PREV MENU PAGE
- NEXT MENU PAGE

14. ZOOM MAX Limit

It is used when user corrects and limits the extensional range of the focus as a function to set the maximum value of zoom.

▶ Off,

▶ 28x zoom : 2x ~ 336X

▶ 37x zoom : 2X ~ 444X

◄◄ CAMERA SETUP p2 ►►
10. Back Light : Off
11. Set Back Light Mode
12. White Balance : Auto
13. Focus Mode :Oneshot
14. Zoom Max Limit : 28/37
15. DSS Control : 8 Fields
16. Day&Night : Auto
17. 3DNR Control :Middle
- PREV MENU PAGE
- NEXT MENU PAGE

15. DSS CONTROL

An object becomes clear as the field value gets higher in illumination, whereas a moving object becomes dim.

▶ Range: Off, 2 ~ 128 fields

◄◄ CAMERA SETUP p2 ►►
10. Back Light : Off
11. Set Back Light Mode
12. White Balance : Auto
13. Focus Mode :Oneshot
14. Zoom Max Limit : 28/37
15. DSS Control : 8 Fields
16. Day&Night : Auto
17. 3DNR Control :Middle
- PREV MENU PAGE
- NEXT MENU PAGE

16. DAY& NIGHT

The function is used to distinguish an object clearly in the dark condition.

▶ Day: Color mode and IR Cut Filter is used

◄◄ DAY&NIGHT AUTO SET ►►
DAY&NIGHT LEVEL : Middle
DWELL TIME ; 10 sec
- RETURN MENU PAGE

▶ Auto F/F: Auto Day/Night mode automatically remove IR cut filter according to current intensity. IR Cut filter is disabled automatically when dark and enabled when bright based on the gain level. With a set mode of ICR off, the infrared sensitivity is increased.

- Day & Night level: select level among low, middle and high.
- Dwell Time: select dwell time (5/sec~60/sec)

◄◄ DAY&NIGHT NIGHT SET ►►
BURST MODE : OFF
IR CORRECTION ; DISABLE
- RETURN MENU PAGE

▶ Night F/F: B/W mode and IR Cut Filter is not used. , Press F/F button to enter setup mode.

- Burst Mode

You can choose either to turn on or to turn off the color burst signal of video standard signal for reducing color noise in D/N Auto Mode.

- IR Correction

You can enable or disable the IR (Infra-Red) correction to support IR light or not. Zoom and focus trace data will be switched according to IR correction ON/OFF. We will only support 850nm IR light source.

The IR correction can be enabled on night (IR-pass) filter.

◄◄ CAMERA SETUP p2 ►►
10. Back Light : Off
11. Set Back Light Mode
12. White Balance : Auto
13. Focus Mode :Oneshot
14. Zoom Max Limit : 28/37
15. DSS Control : 8 Fields
16. Day&Night : Auto
17. 3DNR Control :Middle
- PREV MENU PAGE
- NEXT MENU PAGE

17. 3DNR Control

3D-DNR removes image noise. If the scenes are not clear due to low brightness, the function can make the image clean and obvious.

▶ On / Low / Middle / High

◄◄ CAMERA SETUP p3 ►►
18.STABILIZ On/Off : Off
19. Preset Set & Run Page
20.Trace Set Page
21. Alarm CH On/Off Page
22. Alarm Preset Set Page
23. Privacy Zone Set Page
- PREV MENU PAGE
- NEXT MENU PAGE

18. STABILIZ ON/OFF

There is some tremble as zoom magnification is high, the function can compensate the tremble.

▶ On / Off

◄◄ CAMERA SETUP p3 ►►
18.STABILIZ On/Off : Off
19. Preset Set & Run Page
20.Trace Set Page
21. Alarm CH On/Off Page
22. Alarm Preset Set Page
23. Privacy Zone Set Page
- PREV MENU PAGE
- NEXT MENU PAGE

19. PRESET SET & RUN PAGE

It is a function to set and operate Preset, Group, Tour.

User can see the screen when moves the joystick to Right/Left after fixing the cursor on the menu.

<<PRESET SETUP PAGE>>

① Preset set CH :User can set Preset No. and title on this menu.

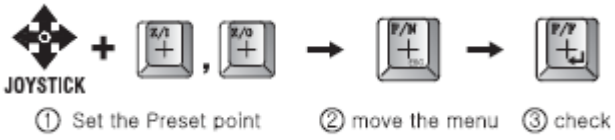
- Preset No. set : Set it by moving the joystick to Right/Left
- Preset title set : User can see the menu “SET ID” when press F/F key after setting Preset No

<< PRESET SET & RUN PAGE >>
- Preset set CH : 001
- Preset PTZ SET
- Preset Swing SET
- Group SET CH : 001
- Tour SET Group
- Run Function : UNDEF
- RETURN MENU PAGE
Press F/F Set Mode
PRESET : 001
[SAVE] [DELETE] [ESC]
F/F Save Return, F/N Select

② Preset PTZ set : Set the position of Preset

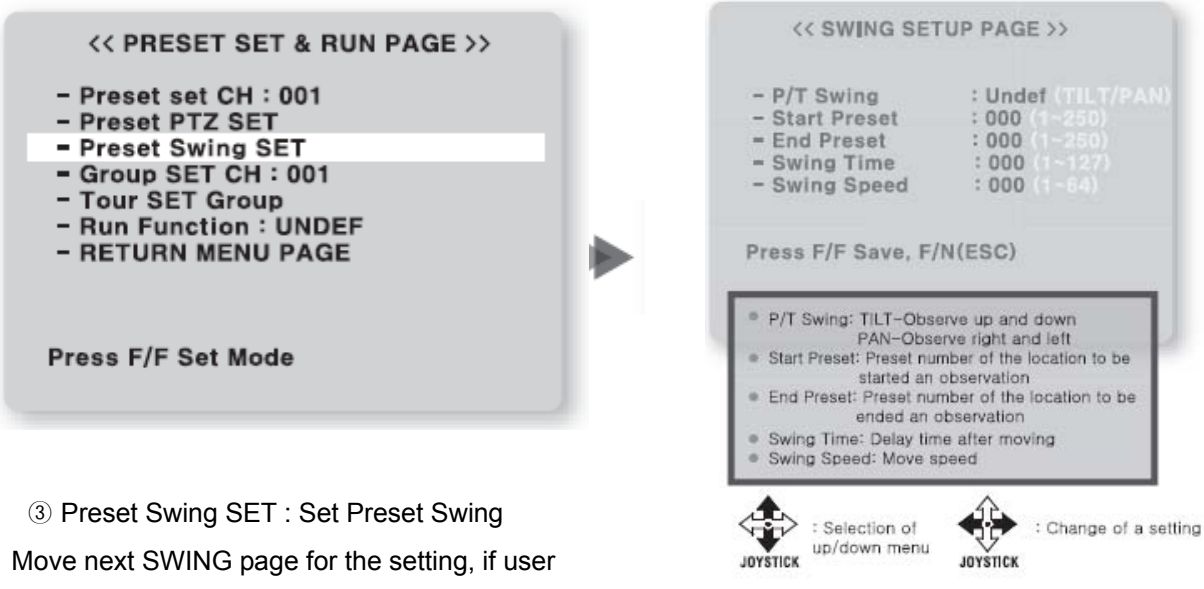
Select the main menu with the joystick, then press F/F key for next page.

Select [SAVE] with F/N key after setting the Preset point by using the joystick and. In/Out function, then the data is saved if user presses F/F key, then it is moved to the previous screen automatically from the menu



•[SAVE]: Previous screen. [DELETE]: Remove. [ESC]: Cancel

※ Repeat the same way after changing the number of Preset, if user set another Preset

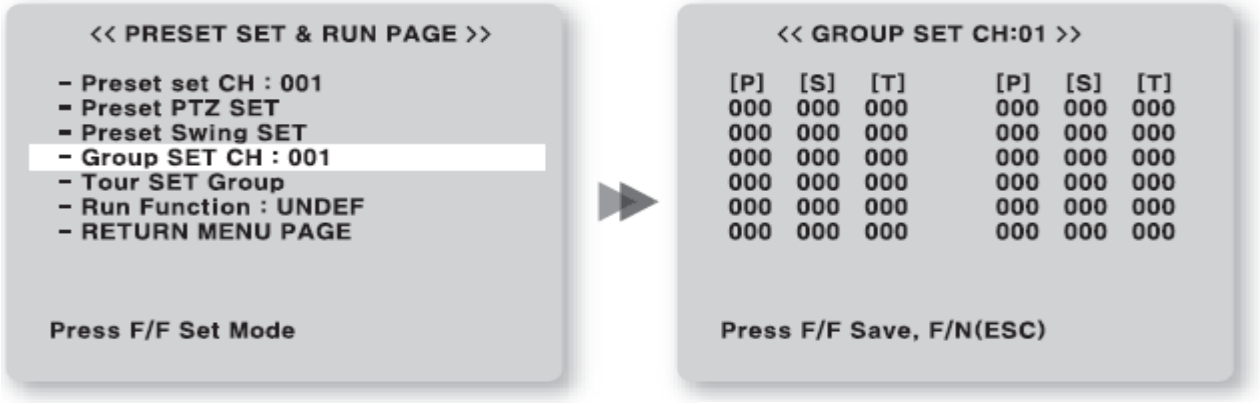

<< PRESET SET & RUN PAGE >>
- Preset set CH : 001
- Preset PTZ SET
- Preset Swing SET
- Group SET CH : 001
- Tour SET Group
- Run Function : UNDEF
- RETURN MENU PAGE
Press F/F Set Mode
<< SWING SETUP PAGE >>
- P/T Swing : Undef (TILT/PAN)
- Start Preset : 000 (1~250)
- End Preset : 000 (1~250)
- Swing Time : 000 (1~127)
- Swing Speed : 000 (1~64)
Press F/F Save, F/N(ESC)
P/T Swing: TILT-Observe up and down PAN-Observe right and left
Start Preset: Preset number of the location to be started an observation
End Preset: Preset number of the location to be ended an observation
Swing Time: Delay time after moving
Swing Speed: Move speed
JOYSTICK : Selection of up/down menu
JOYSTICK : Change of a setting

③ Preset Swing SET : Set Preset Swing

Move next SWING page for the setting, if user presses F/F key in the state of selection of the menu

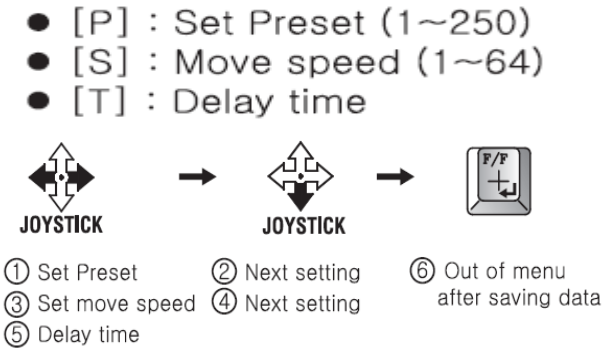
※The preset must be set before the setting as Swing

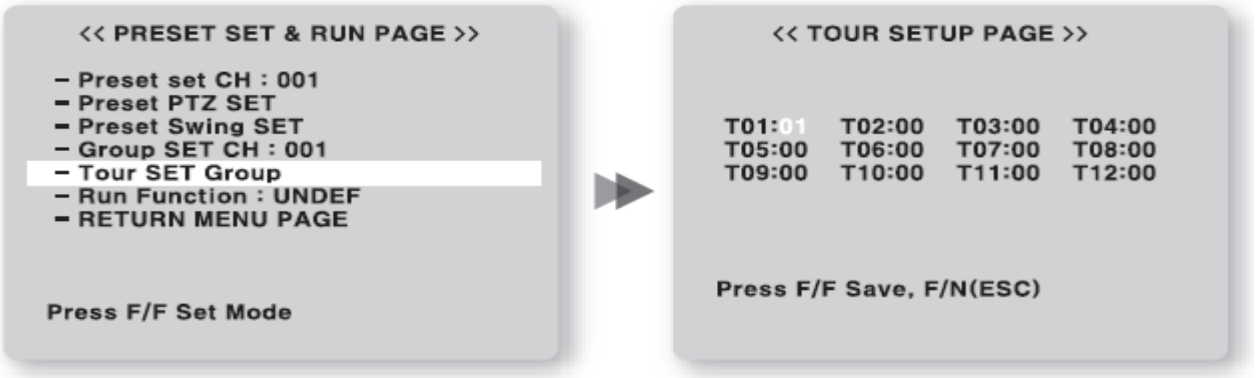
Is a function to repeat an auto observation of 2 Preset points user fixes in Preset set



④ GROUP SET: User can set maximum 12 groups. Select a channel then move to next page after pressing F/F key

※The Preset point in the Group that 12 Preset points are set is observed repeatedly and order with regular speed and time.





⑤ Tour SET Group: User can set continual Group motion that can be put 12 Groups in 1 Tour Move to the setting page if user presses F/F key on this menu

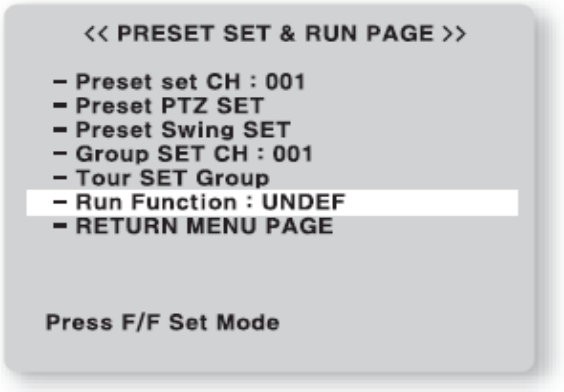
■ The Group user wants to set must be set firstly

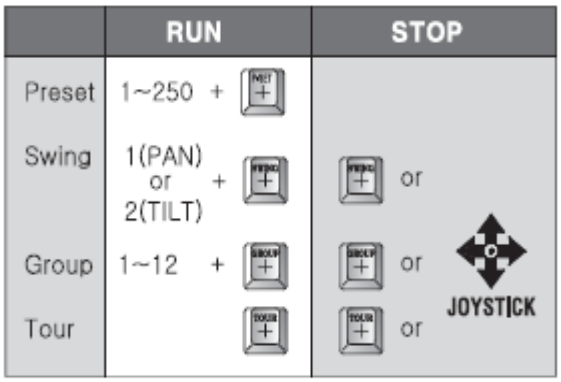
※Setting is only possible when Preset is set first in the state of setting of Swing, Group, Tour, otherwise, it displays the message “Sorry Undefined”.

⑥ Run Function: Operate one of SWING/ ＊Set / Stop order with a control keyboard without menu GROUP / TOUR / TRACE. (It is operated on the screen. automatically after end of OSD menu)

■ User can look at how to set TRACE at TRACE SET PAGE”

⑦ RETURN MENU PAGE: Move to a higher menu page when control the joystick Right/Left in the Selection of this menu.





◄◄ CAMERA SETUP p3 ►►
18.STABILIZ On/Off : Off
19. Preset Set & Run Page
20.Trace Set Page
21. Alarm CH On/Off Page
22. Alarm Preset Set Page
23. Privacy Zone Set Page
- PREV MENU PAGE
- NEXT MENU PAGE

20. TRACE SET PAGE

Set TRACE.

User can regenerate and save a change of the unrestricted location of ZOOM In/Out and a position of the camera by hand-worked control with a joystick.

User can see the screen when moves the joystick to Right/Left after fixing the cursor on the menu

■ How to set TRACE

Move to [SET] after pressing F/N button

Press F/F button – Control scenes that user wants by hand-worked with a joystick after the message.

“Set Trace: OO%” on the middle of the screen. If user finishes this part, Move to [SAVE] and press F/F button.

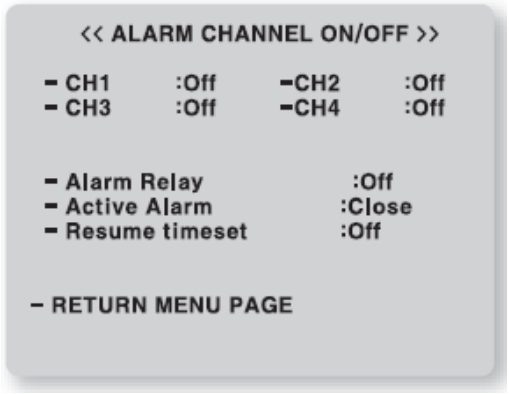
It goes a higher menu after being saved data if user presses F/F button with a display of the message “Save TRACE”

21. ALRAM CHANNEL ON/OFF

◄◄ CAMERA SETUP p3 ►►
18.STABILIZ On/Off : Off
19. Preset Set & Run Page
22.Trace Set Page
21. Alarm CH On/Off Page
22. Alarm Preset Set Page
23. Privacy Zone Set Page
- PREV MENU PAGE
- NEXT MENU PAGE

- CH On/Off : Alarm Input – Each channel can be ON/OFF
- Alarm Relay : It can be set On or not when ALARM OUTOUT PORT operate wrong.
- Active Alarm : It selects ACTIVE OPEN or ACTIVE CLOSE by tangency when something is wrong. It is ACTIVE when ALARM INPUT is OPEN in ACTIVE OPEN, it is ACTIVE when ALARM INPUT is CLOSE in ACTIVE CLOSE

■ What is the ALARM function? : It operate to observe the location of the camera which is memorized previously in the situation of the warning signal or trespassers by using a sensor.



- Resume Time Set :

It can select the delay time that the camera move to the place alarming to observe where wrong signal is sensed.

User can set it for 1sec to 180sec and operate GROUP, TOUR, SWING again in a preset time. SWING, GROUP, TOUR are operated

in a preset time when user stops the operating joystick in the case of not connecting with the ALARM.

Press SWING, GROUP, TOUR keys without stopping of the joystick to stop the operating completely

(*Stopping the operating with the joystick affects the SET function.)

◄◄ CAMERA SETUP p3 ►►
18.STABILIZ On/Off : Off
19. Preset Set & Run Page
22.Trace Set Page
21. Alarm CH On/Off Page
22. Alarm Preset Set Page
23. Privacy Zone Set Page
- PREV MENU PAGE
- NEXT MENU PAGE

22. ALARM PRESET SET PAGE

■ The camera can move to a preset point automatically when something is wrong in each ALRAM CHANNEL.

■ Set a preset point firstly to move if anything wrong, then use that sets the preset number into each ALARM CHANNEL.

■ PRESET is out of connecting in ALARM CHANNEL No.“0”

■ User can select PRESET number 1 to 250 and set it.

■ Home Position Preset

The camera automatically moves to where master user set when another user controls the camera to observe other area.

(You can set 1~250 points)

■ Home Position Time

It sets the dwell time in Home Position Preset.

It automatically moves to where observes ordinarily in the regular time that Master user set in observation of other area ,if set Home Position Preset

(You can set 1~180sec. Set control Home Position Preset and Home Position Time together for using this function.)

※You can set ALARM setting MENU not only in CAMERA SET MENU MODE, but also a KEYBOARD in direct

◄◄ CAMERA SETUP p3 ►►
18.STABILIZ On/Off : Off
19. Preset Set & Run Page
22.Trace Set Page
21. Alarm CH On/Off Page
22. Alarm Preset Set Page
23. Privacy Zone Set Page
- PREV MENU PAGE
- NEXT MENU PAGE

23. PRIVARCY ZONE SET

Max 8 privacy zones can be configured for the protection of privacy.

■ How to set privacy zone

- Select a channel by using joystick
- Selected channel will be changed SET mode automatically.

◄◄ PRIVACY ZONE SETUP ►►
-CH01: Blank -CH02: Blank
-CH03: Blank -CH04: Blank
-CH05: Blank -CH06: Blank
-CH07: Blank -CH08: Blank
-ZONE COLOR :BLACK
-TRANSPARENCY

- PREV MENU PAGE
F/F Select, L/R Change

: Select Set/On/Off/Del

Set : Set a new privacy **On** : Display privacy area
Off : Hide privacy areas **Del** : Delete privacy areas

- Press F/F button to enter SET mode.

■

F/F Save, F/N ESC, Zoom Mask
Set p Privacy : 02

- Fix the black square on the middle of area that you want to hide by a joystick, then go back to the previous page by [F/F] key after controlling the size of the square by [Z/I], [Z/O] key and saving it.
- The Channel is changed BLANK to 'OFF'.
The screen displays the black square, if you change the CH ON' as the left picture.

◄◄ CAMERA SETUP p4► ►
24. Auto Tilt Mode : Off
25.Smart Pan/tilt : ON
26. Manual P/T Speed : Medium
27.Auto Refresh Time :1day
28. Shortcut Key : On
29. Use Password :Off
30. Language :English
31. Factory Reset Warning
- PREV MENU PAGE

24. AUTO TILT MOVE

The PAN is turned in a 180° degree arc automatically when the angle of the camera moves down to the maximum degree, therefore, it is possible to track objects continuously

◄◄ CAMERA SETUP p4► ►
24. Auto Tilt Mode : Off
25.Smart Pan/tilt : ON
26. Manual P/T Speed : Medium
27.Auto Refresh Time :1day
28. Shortcut Key : On
29. Use Password :Off
30. Language :English
31. Factory Reset Warning
- PREV MENU PAGE

25. SMART PANTILT

It is a function that P/T speed is getting slower as Zoom in.

It is hard to observe objects with the high PANTILT speed in operating of Zoon In

This function makes the speed less automatically for the effective observation

◄◄ CAMERA SETUP p4►►
24. Auto Tilt Mode : Off
25.Smart Pan/tilt : ON
26. Manual P/T Speed : Medium
27.Auto Refresh Time :1day
28. Shortcut Key : On
29. Use Password :Off
30. Language :English
31. Factory Reset Warning
- PREV MENU PAGE

26. MANUAL P/T SPEED

User can control the maximum speed in controlling of up and down. It can be set Low, Medium, Max and one turn (360°/sec) is possible in Max.

◄◄ CAMERA SETUP p4►►
24. Auto Tilt Mode : Off
25.Smart Pan/tilt : ON
26. Manual P/T Speed : Medium
27.Auto Refresh Time :1day
28. Shortcut Key : On
29. Use Password :Off
30. Language :English
31. Factory Reset Warning
- PREV MENU PAGE

27. AUTO REFRESH TIME

Auto refresh can be set from 1 to 7days (each) for good focus performance

◄◄ CAMERA SETUP p4►►
24. Auto Tilt Mode : Off
25.Smart Pan/tilt : ON
26. Manual P/T Speed : Medium
27.Auto Refresh Time :1day
28. Shortcut Key : On
29. Use Password :Off
30. Language :English
31. Factory Reset Warning
- PREV MENU PAGE

28. SHORTCUT KEY

The Shortcut Key can make some of the functions to perform faster and easily.

★ **How to use shortcut key (All protocols is operated it at the same way)**

Function	Operation	Function	Operation
Group 1	51 + Preset	Run Trace	66 + Preset
Group 2	52 + Preset	Run Spiral	67 + Preset
Group 12	62 + Preset	B/W Mode	68 + Preset
Run Tour	63 + Preset	Color Mode	69 + Preset
Run Pan Swing	64 + Preset	OSD Menu ON/OFF	95 + Preset
Run Tilt Swing	65 + Preset		

◄◄ CAMERA SETUP p4► ►
24. Auto Tilt Mode : Off
25.Smart Pan/tilt : ON
26. Manual P/T Speed : Medium
27.Auto Refresh Time :1day
28. Shortcut Key : On
29. Use Password :Off
30. Language :English
31. Factory Reset Warning
- PREV MENU PAGE

29. USE PASSWORD

- input the password
- available set On/Off mode; off mode is factory set
- press the F/F button as On mode
- A window will be pop-up for input Old and New passwords. Old password is set as '0000'. To input a new password, use the joystick as up, down, right, and left
- Press F/F button to save the new password. The new password will be needed when access the OSD mode
-

◄◄ CAMERA SETUP p4► ►
24. Auto Tilt Mode : Off
25.Smart Pan/tilt : ON
26. Manual P/T Speed : Medium
27.Auto Refresh Time :1day
28. Shortcut Key : On
29. Use Password :Off
30. Language :English
31. Factory Reset Warning
- PREV MENU PAGE

30. LANGUAGE

English, Portuguese, Polish

◄◄ CAMERA SETUP p4► ►
24. Auto Tilt Mode : Off
25.Smart Pan/tilt : ON
26. Manual P/T Speed : Medium
27.Auto Refresh Time :1day
28. Shortcut Key : On
29. Use Password :Off
30. Language :English
31. Factory Reset Warning
- PREV MENU PAGE

31. FACTORY RESET WARNING

Please be careful of that all setting data of OSD MENU are reset into the first default when operates FACTORY RESET WARNING.
The setting data of Preset, Swing, Group, Tour, Trace, also is deleted all

Ⅳ. Functional Setting by the Keyboard

1. Preset setting

You can set Preset point up to 250.

① Preset Input.

Preset setting can be set 1 to 250 sequentially after moves the camera to where you want

② Preset Move

The camera moves to the preset point, if you press Preset No. that you want and **P-SET Key**

③ Delete a separate Preset

Go on in order as below when the sound is heard in 3 seconds after pressing **CLR Key**

Ex) Delete 5th Preset

(Waiting for 3seconds)

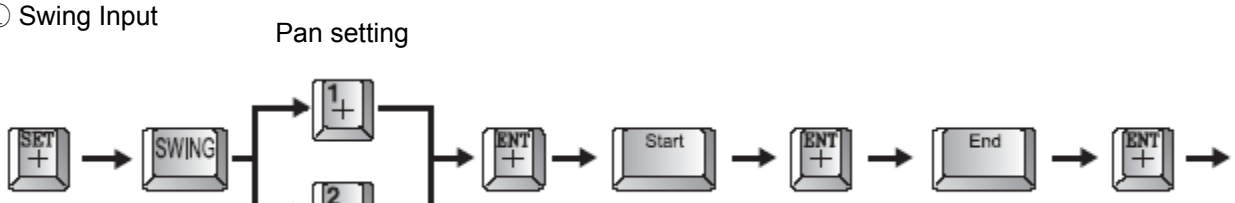
④ Delete all Preset

Go on in order as the right picture when the sound is heard in 3 seconds after pressing **CLR KEY**

(Waiting for 3seconds)

2. Swing setting

① Swing Input



Set the delay time (1~127sec)

Set the move speed (1~64 steps)

② Operation of Swing

(Run Pan) (Run Tilt)

③ End of Swing

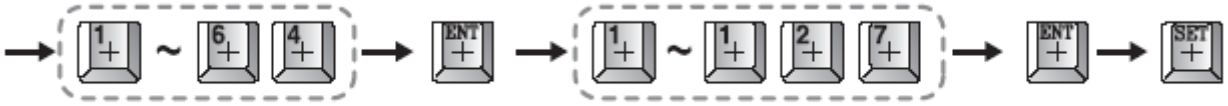
3. Group setting

① Start Group setting mode

Start the Group setting mode

Select the Group in 1~12

Select in Preset No.1~250 and input them.



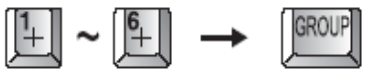
Move Speed:
The Speed from A to B
64=High, 1=Low

Dwell Time:
The dwell time at the point of
A or B before the move. (sec)

- Set Preset No. again if you want to input it continuously.
- Set a GROUP again from the first after ending with SET Key, if you would like to finish Preset input in one group to input next Group.

② Start a Group

.

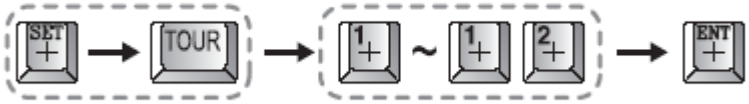


③ Stop the Group

You can stop it when pressing Group key or using a joystick

4. Tour setting

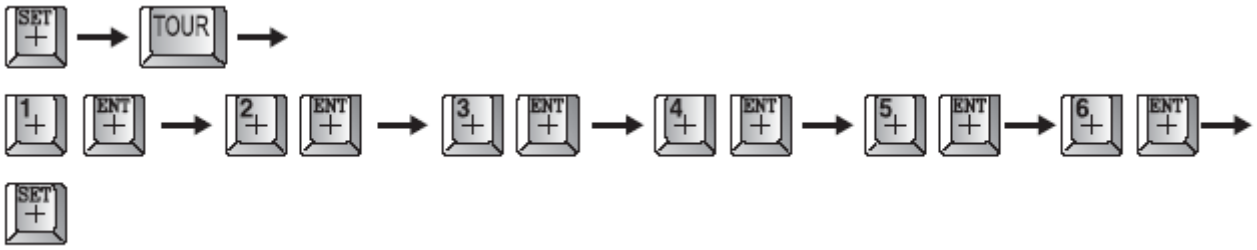
① Tour set mode



Start the Tour set mode

Select a Group in 1 ~ 12

■ Repeat input in continual input



EX). Register Group No. 1, 3, 6 as Tour

Start Tour mode	Register Tour No.1	Register Tour No.2	Register Tour No.3	Finish Tour mode

② Start / End Tour

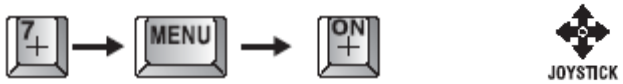
Start Tour　　Finish Tour

③ Delete Tour

5. Spiral Function

It is a function to observe objects in the spiral direction.

① Spiral observation 'ON'　　② End

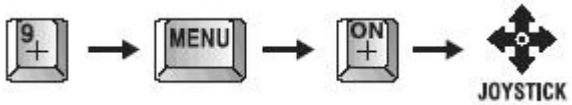


6. PTZ Trace

It memorizes P/T/Z motions for 200sec, then operates them at the same Trace.

① Start / End Trace

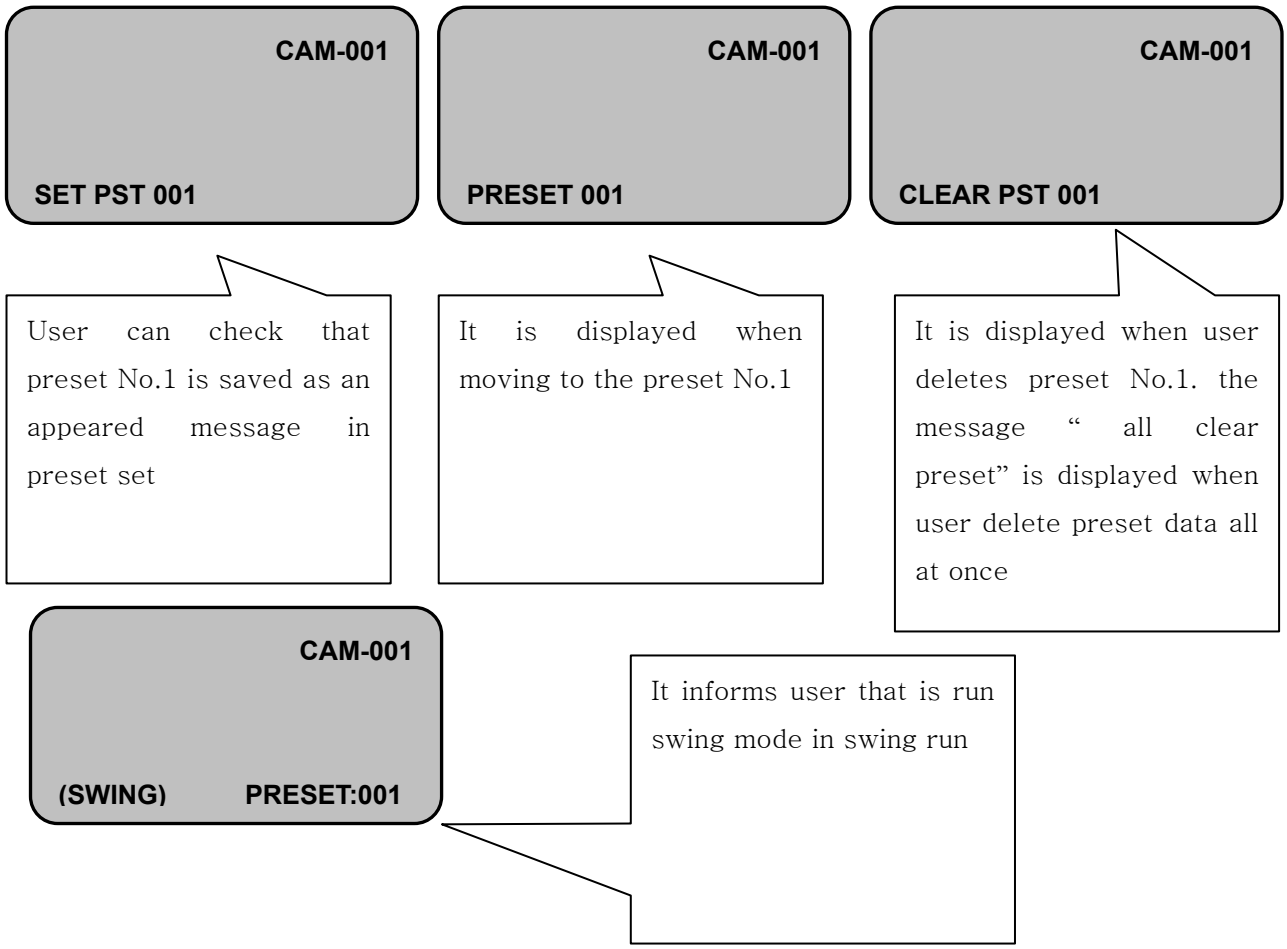
② Set Trace

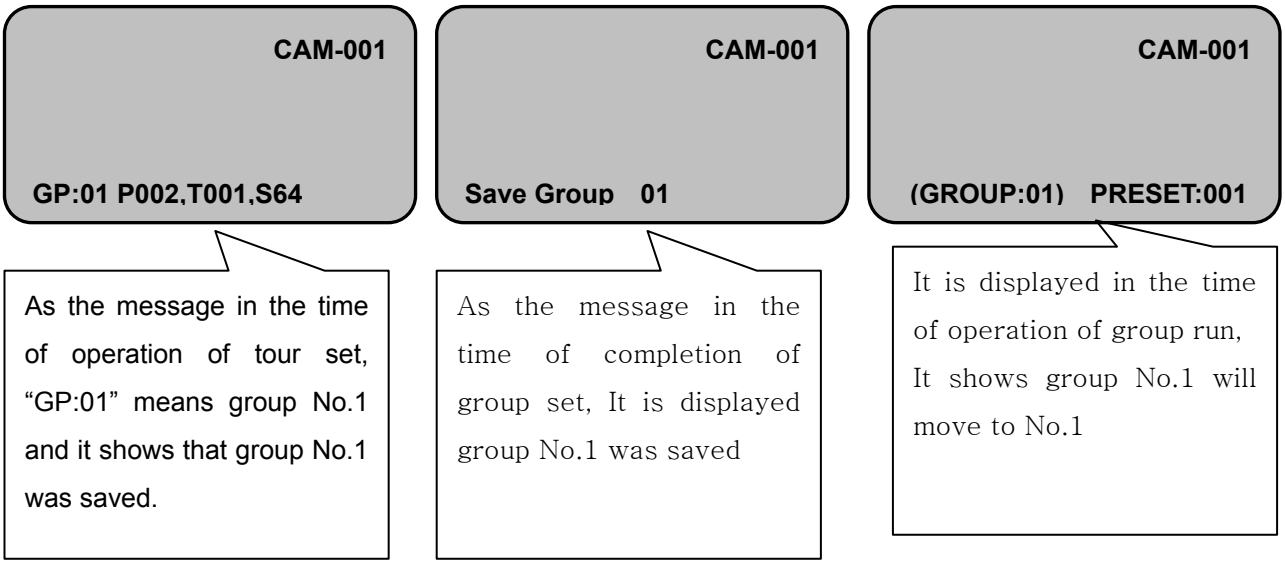


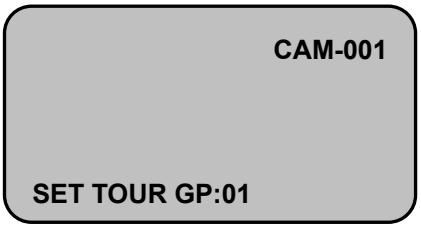
③ Delete Trace

Ⅴ. OSD MESSAGE DISCRIPTION

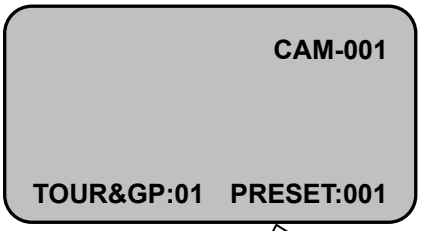
1. PRESET MESSAGE


CAM-001
SET PST 001
User can check that preset No.1 is saved as an appeared message in preset set
CAM-001
PRESET 001
It is displayed when moving to the preset No.1
CAM-001
CLEAR PST 001
It is displayed when user deletes preset No.1. the message " all clear preset" is displayed when user delete preset data all at once
CAM-001
(SWING) PRESET:001
It informs user that is run swing mode in swing run

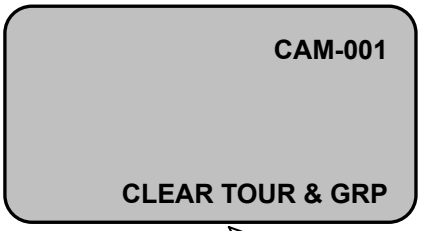

CAM-001
GP:01 P002,T001,S64
As the message in the time of operation of tour set, "GP:01" means group No.1 and it shows that group No.1 was saved.
CAM-001
Save Group 01
As the message in the time of completion of group set, It is displayed group No.1 was saved
CAM-001
(GROUP:01) PRESET:001
It is displayed in the time of operation of group run, It shows group No.1 will move to No.1



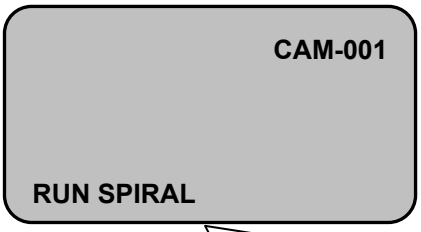
As the message in the time of operation of Tour set, “GP:01” means group No.1 and it shows that group No.1 was saved.



As the message in the time of operation of tour run, it will show that moving to preset No.1 in group No.1



It shows the data in group and tour saved was deleted.



RUN SPIRAL : It is the message in the time of operation of spiral sequence.
It observe all area of an object in three dimension that spiral sequence camera moves to upper then down slowly in a spiral direction.

Ⅵ. TROUBLE SHOOTING

1. You must turn off the power switch before installation of this equipment
2. Avoid installation places where it is the ultimate cold, hot, and humid.
3. Use a power supply of AC24V, 1.5A output.
4. Please be careful that you connect respective wires without mismatching in installation.
5. Check the controlled cable's insulation connecting to exterior and supply to power sources.
6. Please keep the equipment from impact and strong rolling in installation or in use because of the caution of troubles.

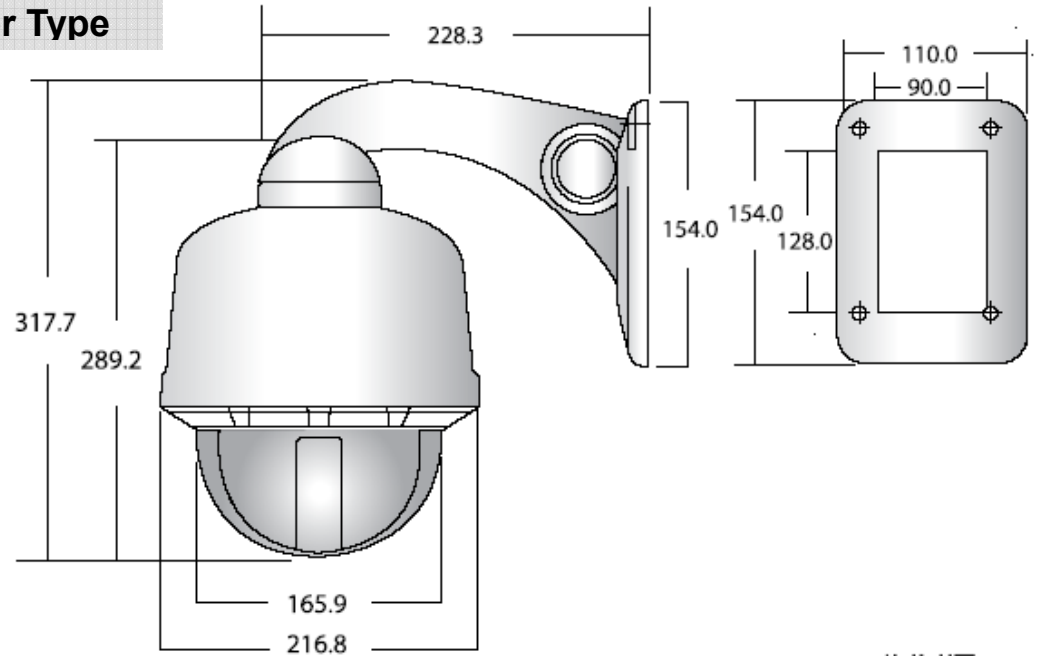
TROUBLE SHOOTING	CHECK POINT	MAINTENANCE
Power do not turn on	Does the electric power supply into the equipment normally?	Check either LED is lit or not in the connector part of back box.
Power turned on but do not operate.	In operating, Does the LED beside power switch light to red?	● Check the connecting status of data cable, if it is not lit. ● If it is lit, check address and communication speed setting of DIP switches.
	Did you select to RS485 or RS422 exactly?	Check the status at number 2 of option DIP switches.
The acting of pan/tilt is not good.	Did you turn on the ending terminal register? (The ending terminal resister can be switch on/off, if you loose cover of dome.)	Switch on the ending terminal resister of camera to be set in most far away.
Either it is not clean on screen or it is appeared rolling TV lines on screen.	Is the power supply AC24V, 1.5A output?	Change the adapter has higher current charge than used adapter.
It is not focus on the object by manual.	Did you change min. distance in the set menu?	Change min. distance in the set menu.
It is continuously appeared error message of " P/T POSITION ERROR"	Did the under body of camera press or put between others?	Get rid of something that press camera, and check either camera is rotating in softly or not.
It is continuously appeared error message of " SORRY NOT MEMORY"	Did you set the related function?	Please refer to manual book and setting the function you want
It does not alarm relay ON in active alarm state.	Did you set ON the alarm relay in the set mode?	Please select on to enable alarm relay in the set mode
Even if sensor is normal, it is activated abnormal.	Is it correct alarm active setting status and sensor is either open or close?	Please set alarm active mode setting as to correct to connect status of sensor (it means either sensor is open or close) in the set mode.

When it occurred alarm state, it is not exactly presser position or different.	Did you set the preset in the set mode?	Check setting status of the alarm preset in the set mode.
When it activate alarm state, there is no sign on the keyboard controller	Did you use the exclusive control keyboard?	It is need to use an exclusive control keyboard so that the alarm sound is activated on the controller
	Yes, I do.	Please select on to enable alarm of the related camera.

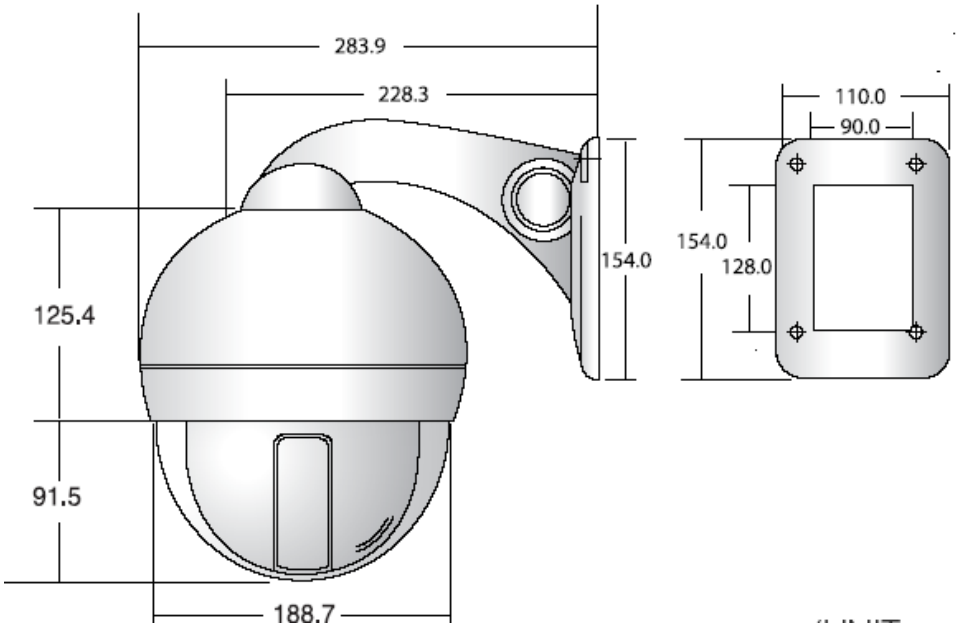
Ⅶ. DIMENSIONS

Wall mount bracket

Outdoor Type

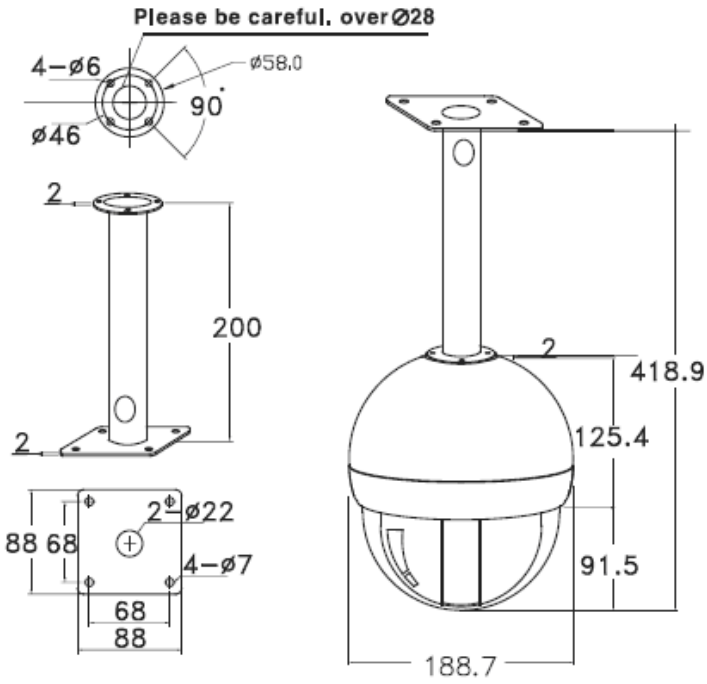


Indoor Type

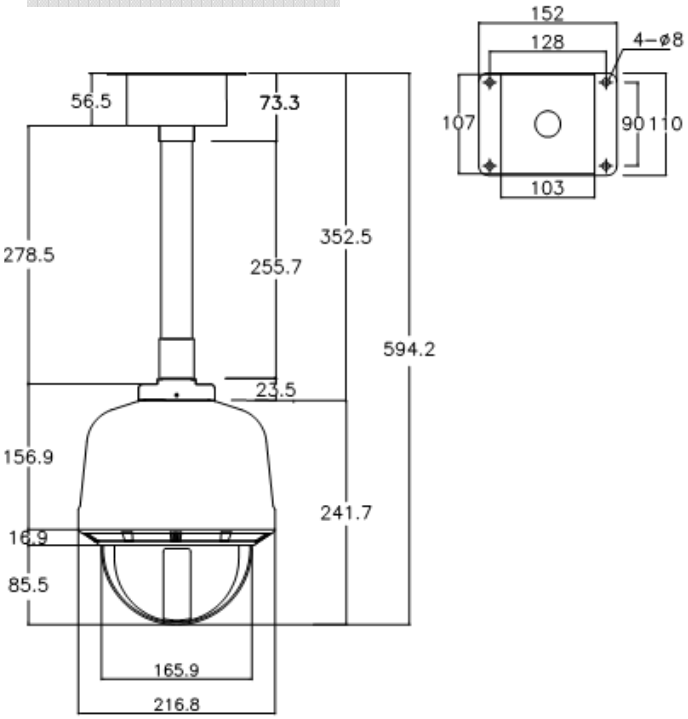


Ceiling mount bracket

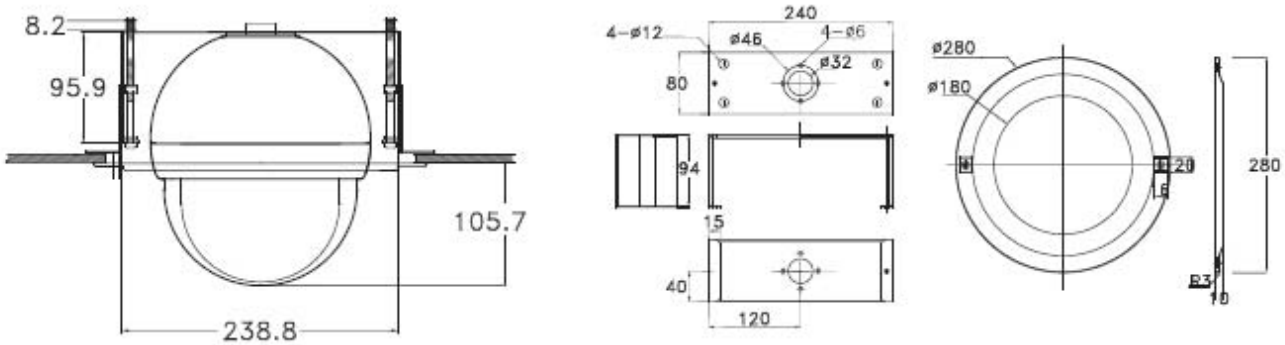
Indoor Type



Outdoor Type

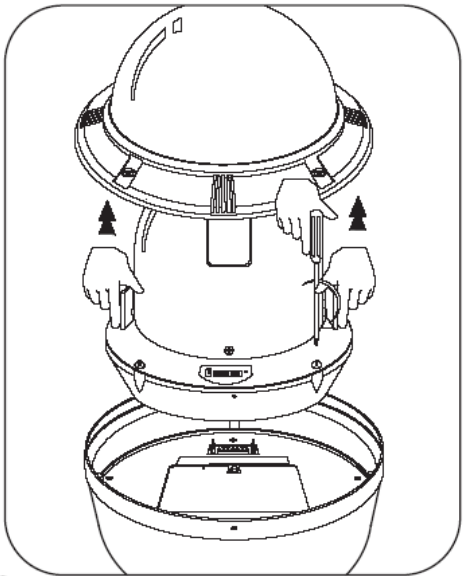


In-ceiling mount bracket

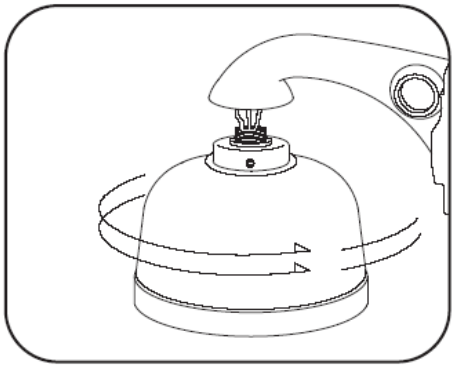


Ⅷ. ASSEMBLY

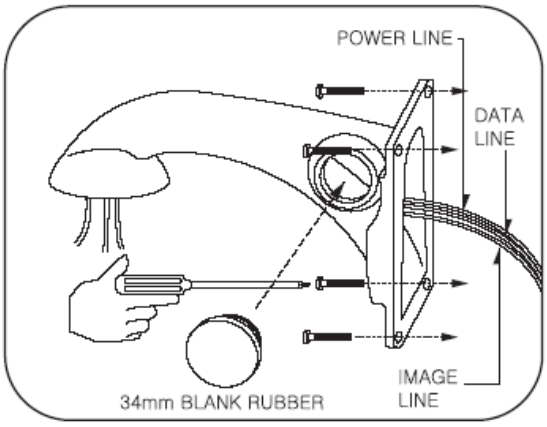
DSC-30EWP Wall mount bracket



① Remove the main body of camera from the housing

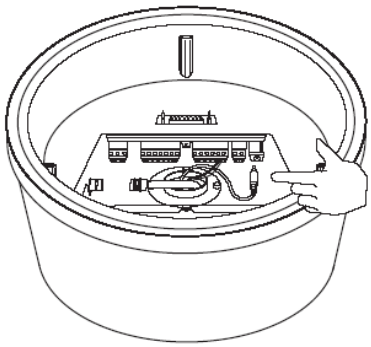


③ Fix the upper cover into a wall bracket with turning it in the same direction as the picture

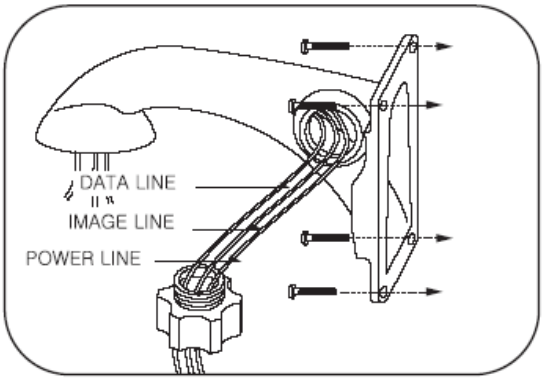


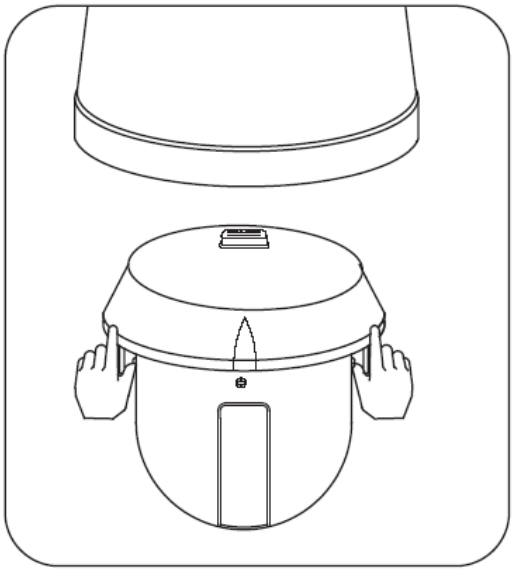
② Fix four bolts after connecting each line and block up the hole of the bracket's body with 34mm block rubber.

Connect the line as above the picture when you set in the concrete structure such as the wall and connect TAB/P1/11" flexible connector (28∅)



④ Connect the data cable, video cable and power source cable.

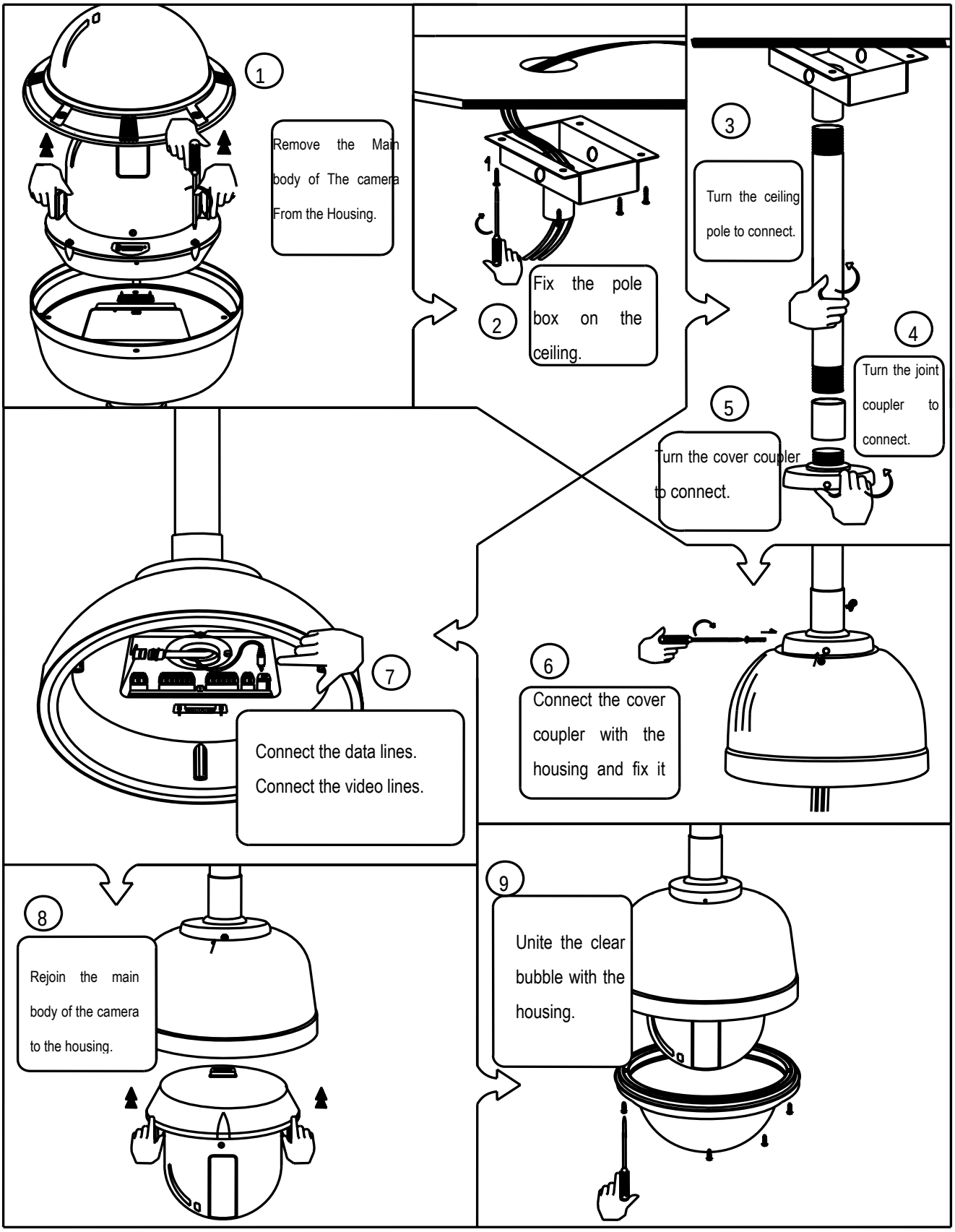




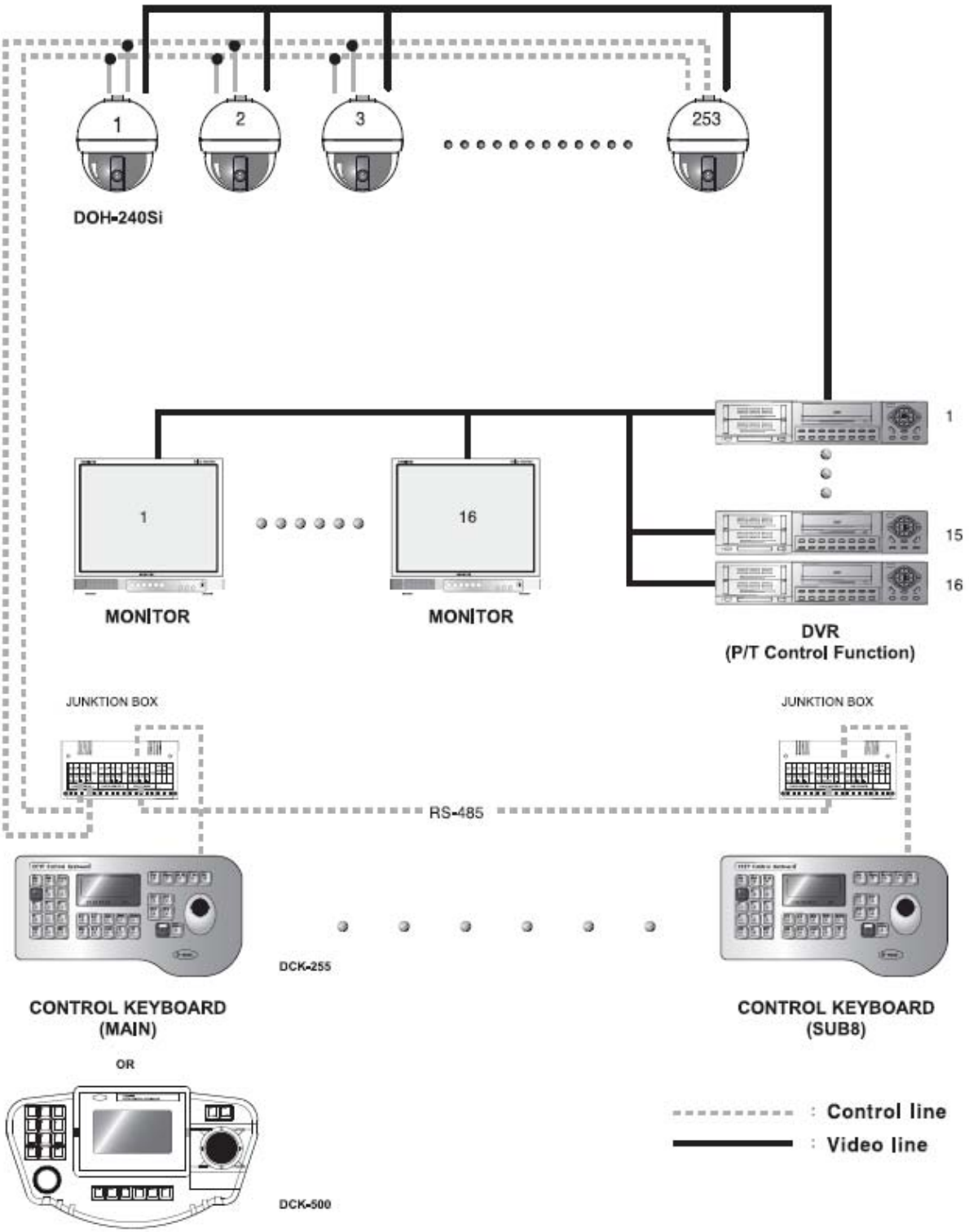
⑤ Unite the body of the camera to the housing.

DSC-20ECP Wall mount bracket

Assembly of outdoor dome with pole mount pendant


1
Remove the Main body of The camera From the Housing.
2
Fix the pole box on the ceiling.
3
Turn the ceiling pole to connect.
4
Turn the joint coupler to connect.
5
Turn the cover coupler to connect.
6
Connect the cover coupler with the housing and fix it
7
Connect the data lines.
Connect the video lines.
8
Rejoin the main body of the camera to the housing.
9
Unite the clear bubble with the housing.

Main & Sub Keyboard configuration



Ⅸ. SPECIFICATIONS

MODEL	28X Zoom □	37X Zoom □
Image sensor	1/4” Sony double scan CCD Ⅱ	
Total / Effective pixels	NTSC: 520K / 480K PAL: 610K / 570K	
Horizontal resolution	Color : 650 TVL, B/W 750 TVL	
Lens (Digital Zoom)	28x Optical zoom, f =3.5 ~98mm F 1.5(Wide End), F 3.7(Tele End)	37x Optical Zoom f =3.5 ~ 129.5 mm F 1.5(Wide End), F 4.1(Tele End)
Angle of view	H : 55.5° ~1.59° , V : 42.5°~1.19°	H : 55.5° ~1.59° , V : 42.5°~1.19°
Minimum illumination	0.00001Lux(with DSS, Sens-up 128x)	
Luminance S/N ratio	More than 52dB	
Video output	1 Vp-p Composite video output 75Ω	
Focus mode	Auto / Manual / Oneshot	
DNR	Off / Low / Middle / High	
Back Light Control	BLC / HSBLC /WDR	
Shutter speed	Auto / 1/120 ~ 1/120,000 sec	
Sharpness control	Level (0 – 34)	
Stabilizer	On/Off	
Alarm in/out	4 Inputs / 1 Relay Output	
Pan/Tilt angle	360° Endless / 92°	
Preset point	250 Presets	
Preset Speed	Max 360°/sec (64 Levels)	
Privacy zones masking	8Zones	
Operating temperature /	- 40°C ~ 50°C (-40°F ~ 122°F) (Outdoor Model) / Less than 90%RH	
Operating humidity	- 10°C ~ 50°C (-14°F ~ 122°F) (Indoor Model) / Less than 90%RH	
Communiction system	RS-485	
Operating Fan/Heater	Over than 45°C / Less than 5°C (Only Outdoor Model)	
Dimensions	188.7mm(Diameter) x 216.9(Height) mm (Indoor Model)	
	216.8mm(Diameter) x 289.2(Height) mm (Outdoor Model)	
Weight	About 5.2Kg (Outdoor Model), About 3.1Kg (Indoor Model)	
Construction	Aluminum body , Clear vandal bubble (PC) (Outdoor Model)	
	ABS body , Clear vandal bubble (PC) (Indoor Model)	
Power consumption	21W (Max) Indoor Model / 18W (Max) Outdoor Model	
Power supply	AC24V, 60/50 Hz	

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